FREE STANDING RANGE

BASIC: FTQ387LWGX
MODEL: FE710DRS
MODEL CODE: FE710DRS/XAA

SERVICE Manual

ELECTRIC RANGE

CONTENTS

1. Precaution
2. Product Specification
3. Disassembly and Reassembly
4. Troubleshooting
5. Exploded Views and Part List
6. PCB Diagrams
7. Schematic Diagrams
8. Wiring Diagram

Refer to the service manual in the GSPN(see rear cover) for the more information.

• Contents

1. Precaution 3
1-1 Forward 3
1-2 Safety Precautions 3
1-3 Important Safety Instructions 4
1-4 Model & Serial Number Label and Tech Sheet Locations 6

2. Specifications 7
2-1 Features 7
2-2 Table of Specifications 8
2-3 Accessory 9

3. Disassembly and Reassembly 10
3-1 Removing Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Sub 10
3-2 Removing PCB-Main 11
3-3 Removing Regulator-Energy 12
3-4 Removing Surface elements and The Ceramic Glass Cooktop 13
3-5 Removing The Latch-Door & Switch-Door Plunger 15
3-6 Removing Heater-Broil 16
3-7 Removing Heater-Bake 17
3-8 Removing Convection Element, Fan-Covnection and Motor-Convection 18
3-9 Removing Lamp 19
3-10 Removing Sensor-Thermistor 20
3-11 Removing Assy-Partition Switch 21
3-12 Removing Assy-Drawer & Heater-Warming Drawer 22
3-13 Removing and Replacing Oven Door 24
3-14 Removing Handle-Door and Glass-Inner 25
3-15 Removing Gasket-Door 28
3-16 Removing The Panel-Side 29

4. Troubleshooting 30
4-1 Failure Display Codes 30
4-2 Electrical Malfunction 45

5. PCB Diagrams 65
5-1 PCB Diagrams (Main) 65
5-2 PCB Diagrams (Sub) 66

6. Wiring Diagrams 67
6-1 Wiring Diagrams 67

7. Schematic Diagrams 68
7-1 Schematic Diagrams 68

1. Precaution

1-1 Forward

This SAMSUNG Service Manual, “ 30” Freestanding Self-Cleaning Electric Range,” provides the technician with information on the operation and service of the Freestanding Self-Cleaning Electric Range. It is to be used as a training Service Manual. For specific information on the model being serviced, refer to the “Owner’s Manual” or “Tech Sheet” provided with the electric range.

1-2 Safety Precautions

- Repairs of the appliance should be carried out by a licensed technician only. Incorrect repairs may result in dangerous situations. If you need repairs, contact an SAMSUNG Service Center or your dealer.
- If the power cord is defective, it must be replaced by a qualified service agent with a UL listed range cord.
- Electrical leads and cables should not be allowed to touch the oven.
- Rating plate is located on the left side of warming drawer.
- The power supply of the appliance should be turned off when it is being repaired.

WARNING

- To avoid risk of severe personal injury or death, disconnect power before working/servicing on appliance to avoid electrical shock.
- When the oven operates, the interior parts will be very hot.

SAMSUNG Electronices assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

1-3 Important Safety Instructions

Read and follow all instructions before using your oven to prevent the risk of fire, electric shock, injury to person, or damage when using the range. This guide don't cover all possible conditions that may occur. For further assistance contact your service agent or manufacturer.

WARNING

This symbol will help alert you to hazards or unsafe practices which could cause serious bodily harm or death.

- Be sure your appliance is properly installed and grounded by a qualified technician.
- Do not repair or replace any part of the appliance unless specifically recommended in the manual. All other servicing should be referred to a qualified technician.
- Always disconnect power to appliance before servicing by removing the fuse or switching off the circuit breaker

WARNING

- INJURIES CAN OCCUR IF THE RANGE TIPS
- INSTALL ANTI-TIP DEVICE PACKED WITH RANGE

- FOLLOW ALL INSTALLATION INSTRUCTIONS

To reduce the risk of tipping of the range, the range must be secured by properly installed anti-tip devices. To check if the bracket is installed properly,

- Warming drawer : grasp the top rear edge of the Range and carefully attempt to tilt it forward. verify that the anti-tip devices are engaged.
- Storage drawer : Remove drawer and verify leveling leg is inserted into and fully secured by the anti-tip devices.

Refer to the installation manual for proper anti-tip bracket installation.

- Do not step, lean or sit on the doors of the range -this can cause the range to tip, resulting in burns or serious injuries.

WARNING

- **DO NOT TOUCH HEATING ELEMENTS OR INTERIOR SURFACES OF OVEN** – Heating elements may be hot even though they are dark in color. Interior surfaces of an oven become hot enough to cause burns. During and after use, do not touch, or let clothing or other flammable materials contact heating elements or interior surfaces of oven until they have had sufficient time to cool. Other surfaces of the appliance may become hot enough to cause burns – among these surfaces are oven vent openings and surfaces near these openings, oven doors, and windows of oven doors.

CAUTION

Do not store items of interest to children in cabinets above a range or on the back guard of a range – children climbing on the range to reach items could be seriously injured.

- Do Not Leave Children Alone - Children should not be left alone or unattended in area where appliance is in use. They should never be allowed to sit or stand on any part of the appliance.
- Never Use Your Appliance for Warming or Heating the Room.
- Storage in or on Appliance – Flammable materials should not be stored in an oven or near surface units. Be sure all packing materials are removed from the appliance before operating it. Keep plastics, clothes and paper away from parts of the appliance that may become hot
- Wear Proper Apparel – Loose-fitting or hanging garments should never be worn while using the appliance.
- Do Not Use Water on Grease Fires – Turn off oven to avoid spreading the flame. Smother the fire or flame by closing the door or use dry chemical, baking soda or foam- type extinguisher.
- Use Only Dry Potholders – Moist or damp potholders on hot surfaces may result in burns from steam. Do not let potholder touch hot heating elements. Do not use a towel or other bulky cloth.

WARNING

SURFACES

- **DO NOT TOUCH SURFACE UNITS OR AREAS NEAR UNITS** – Surface units may be hot even though they are dark in color. Areas near surface units may become hot enough to cause burns. During and after use, do not touch, or let clothing or other flammable materials contact surface units or areas near units until they have had sufficient time to cool. Among these areas are the cook-top and surfaces close to the cook-top.

WARNING

To avoid risk of electrical shock, personal injury, or death, make sure your range has been properly grounded and always disconnect it from main power supply before any servicing.

1. Precaution

SURFACE COOKING UNITS

- **Use Proper Pan Size** – This appliance is equipped with one or more surface units of different sizes. Select utensils having flat bottoms large enough to cover the surface unit heating element. The use of undersized utensils will expose a portion of the heating element to direct contact and may result in ignition of clothing. Proper relationship of utensil to burner will also improve efficiency.
- **Never Leave Surface Units Unattended at High Heat Settings** – Boil overs may cause smoking and greasy spillovers may ignite.
- **Glazed Cooking Utensils** – Only certain types of glass, glass/ceramic, ceramic, earthenware, or other glazed utensils are suitable for range-top service without breaking due to the sudden change in temperature.
- **Utensil Handles Should Be Turned Inward and Not Extend Over Adjacent Surface Units** – To reduce the risk of burns, ignition of flammable materials, and spillage due to unintentional contact with the utensil, the handle of a utensil should be positioned so that it is turned inward, and does not extend over adjacent surface units.
- Be sure you know which control pads operate each surface unit. Make sure you turned on the correct surface unit.

SELF-CLEAN OVENS

- **Do Not Clean Door Gasket** – The door gasket is essential for a good seal. Care should be taken not to rub, damage, or move the gasket.
- **Do Not Use Oven Cleaners** – No commercial oven cleaner or oven liner protective coating of any kind should be used in or around any part of the oven.
- **Clean in the self-clean cycle only parts listed in this manual**. Before self-cleaning the oven, remove the broiler pan and any utensils from the oven.
- **Never keep pet birds in the kitchen** – the health of birds is extremely sensitive to the fumes released during an oven selfclean cycle. Fumes may be harmful or fatal to birds. Move birds to well-ventilated room.
- **Important Instruction** – In the event the self-clean mode “F” code goes on, or three long beeps sound, oven is malfunctioning in the self-clean mode. Turn off or disconnect appliance from power supply and have serviced by a qualified technician.

VENTILATING HOODS:

- **Clean Ventilating Hoods Frequently** – Grease should not be allowed to accumulate on hood or filter.
- **When flaming foods under the hood, turn the fan on.**

OVEN

- **Use Care When Opening Door** – Let hot air or steam escape before you remove or replace food in the oven
- **Do Not Heat Unopened Food Containers** – Build-up of pressure may cause container to burst and result in injury.
- **Keep Oven Vent Ducts Unobstructed** – the oven vent is located above the left rear surface unit. this area could become hot during oven use. Never block this vent and never place plastic or heatsensitive items on vent
- **Placement of Oven Racks** – Always place oven racks in desired location while oven is cool. If rack must be moved while oven is hot, do not let potholder contact hot heating element in oven.
- **Do Not** allow aluminum foil or meat probe to contact heating elements.

GLASS/CERAMIC COOKING SURFACES

- **Do Not Cook on Broken Cook-Top** – If cook-top should break, cleaning solutions and spillovers may penetrate the broken cooktop and create a risk of electric shock. Contact a qualified technician immediately.
- **Clean Cook-Top With Caution** – If a wet sponge or cloth is used to wipe spills on a hot cooking area, be careful to avoid steam burn. Some cleaners can produce noxious fumes if applied to a hot surface.

DEEP FAT FRYERS:

- Use extreme caution when moving the grease kettle or disposing of hot grease.

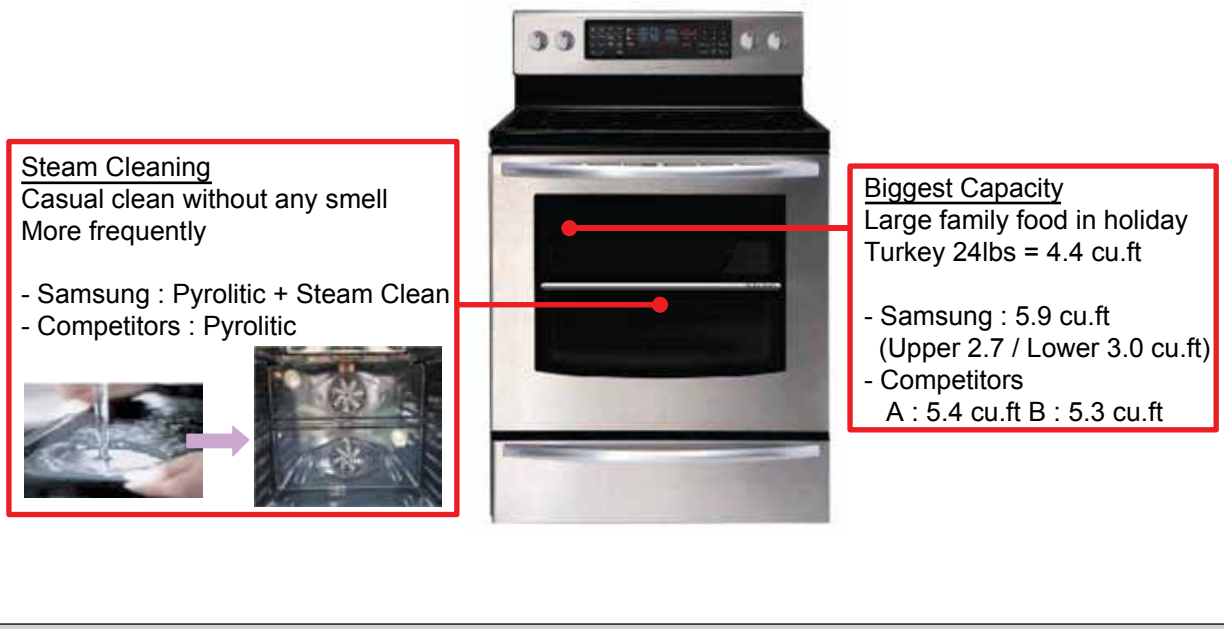
1-4 Model & Serial Number Label and Tech Sheet Locations

This Model / Serial Number label and Tech Sheet locations are shown below.

2. Specifications

2-1 Features

Features


Steam Cleaning
Casual clean without any smell
More frequently
- Samsung : Pyrolitic + Steam Clean
- Competitors : Pyrolitic
Biggest Capacity
Large family food in holiday
Turkey 24lbs = 4.4 cu.ft
- Samsung : 5.9 cu.ft
(Upper 2.7 / Lower 3.0 cu.ft)
- Competitors
A : 5.4 cu.ft B : 5.3 cu.ft

Features

Item	Steam Clean
How to Use	- Pour the water 10oz (+detergent) - Push the steam cleaning button - In around half min, the oven will stop automatically. - Wipe it out with wet cloths.
Operating (Temperature)	About 70 ºC
Operating Time	20 Minutes
Used Heater	Bottom Baked Heater
Smell	No smell
Tool to clean	Wet cloths

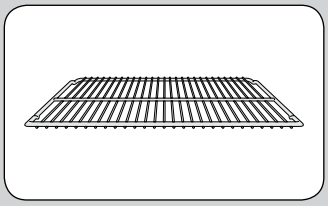
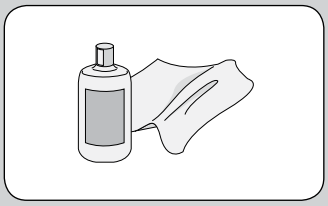
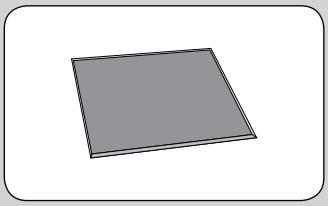
Biggest Capacity

- The biggest capacity in current US market !!!
- It benefits consumers to cook for large family food in Thanksgiving & Christmas seasons
(i.e Turkey 25 lbs = 4.4 cu ft, 20 lbs = 3.5 cu ft)

2-2 Table of Specifications

Items		Model	
		BASIC MODEL	NEW MODEL
Model Name		FTQ387LWGX	FER710DRS
Category		Convection	Convection
Overall	Width	30”	30”
	Installation type	Freestanding	Freestanding
	Color availability	STS	STS
Control	Oven	Touch	Touch
	Cooktop	Knob	Knob
	Display	LED	LED
	Electronic clock	Yes	Yes
	Control lock capability	Yes	Yes
	Audible preheat signal	Yes	Yes
Cooktop	Material	Ceramic glass	Ceramic glass
	# of element	5	5
Power	LR	6”-1,200W	6”-1,200W
	RR	6”-1,200W	6”-1,200W
	CR	Warming Center (100W)	Warming Center (100W)
	LF	Dual(6”/9”-1,400/2,500W)	Dual(6”/9”-1,400/3,000W)
	RF	Triple(6”/9”/12”) (1100/2200/3000W)	Triple(6”/9”/12”) (1100/2200/3000W)
Oven	Capacity(cu.ft)	5.9	5.9
	Broil element	3800 watts	3800 watts
	Bake element	3000 watts	3000 watts
	Convection System	Yes	Yes
	Convection element	Yes (800W, 240V)	Yes (1250W, 240V)
	# of Racks	3	3
	Interior oven light	120V, 40 watts	120V, 40 watts
	Cleaning	Pyrolytic &Steam	Pyrolytic &Steam
Drawer	Type	Warming drawer	Warming drawer
	Element	600 watts	600 watts
	Warming rack	No	No
Dimensions (inch)	Oven Interior(W x H x D)	24 1/2 x 20 1/4 x 19 3/8	24 1/2 x 20 1/4 x 19 3/8
	Exterior - Width	29 7/8	29 7/8
	Exterior - Height	36 (cooktop), 47 5/8 (backguard top)	36 (cooktop), 47 5/8 (backguard top)
	Exterior - Depth	25 11/16 (Door), 28 (with handle)	25 11/16 (Door), 28 (with handle)
	Net weight: Lbs (Kg)	181 lbs (82kg)	187 lbs (85kg)
Power	Rating(240V 60Hz)	Range : 4500W Cooktop : 8000W	Range : 4500W Cooktop : 8500W

2-3 Accessory

Item	Description	Code No.	Q'ty
	Rack Flat	DG75-01001A	3
	Assy-Cleaning Kit	DG97-00085A	1
	Assy-Partition	DG94-00484A	1

3-1 Removing Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Sub

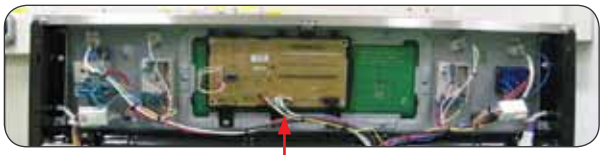
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Sub		1. Turn off the electrical supply going to the range. 2. Pull the range away from the wall so that you can access the rear panel. 3. Remove the 8 screws from the Cover-Back Main Wire and remove the panel.
		4. Remove 3 screws from the Cover-Back Guard Wire and remove the cover. 5. Remove 2 screws of PCB-Sub and separate PCB-Sub.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-2 Removing PCB-Main

WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explaination Photo	Explaination
PCB Main		**1.** Turn off the electrical supply going to the range. **2.** Pull the range away from the wall so that you can access the rear panel. **3.** Remove Cover-Back Main Wire and Cover-Back Guard Wire (See step 4 on page 12) **4.** There are 2 PCB's (power control board). When you check PCB, check the proper PCB in default mode and check main PCB.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

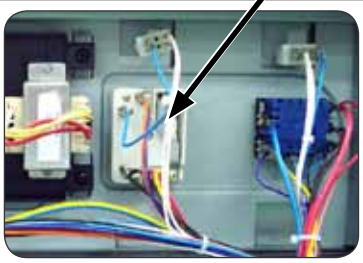
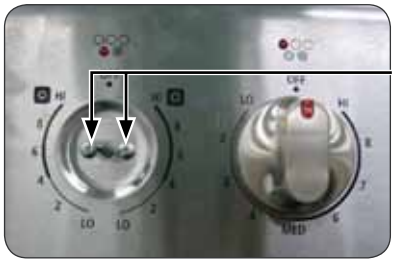
3-3 Removing Regulator-Energy

WARNING

Disconnect power before servicing the range Replace all panels before operating range. Failure to do so can result in dearh or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explaination Photo	Explaination
Regulator-Energy		**1.** Turn off the electrical supply going to the range. **2.** Pull the range away from the wall so that you can access the rear panel. **3.** Remove Cover-Back Guard Wire (See step 4 on page 12)
		**4.** Remove Regulator-Energy connectors which be replaced.
		5. Pull out the Knob-Dial.
	 2 Screws	**6.** Remove 2 screws and replace Regulator-Energy.

* Reassembly of All part is the reverse order of disassembly.

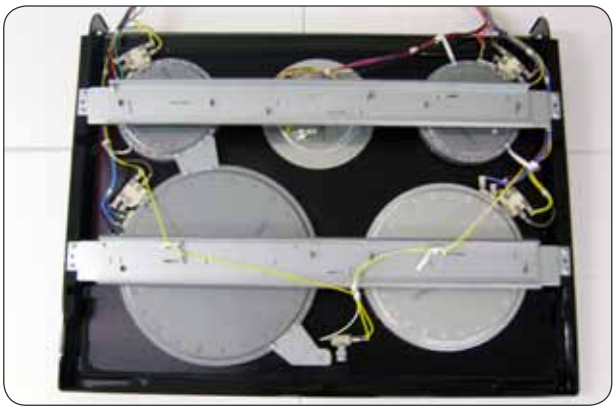
Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-4 Removing Surface elements and The Ceramic Glass Cooktop

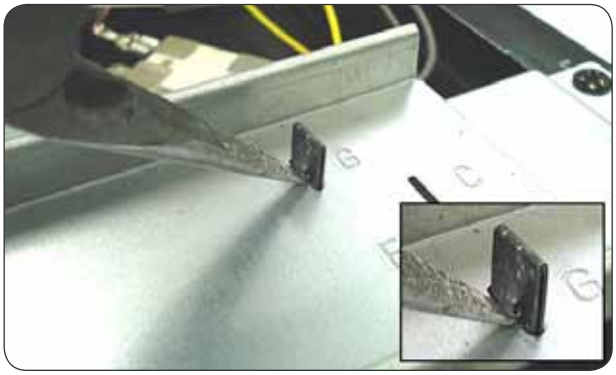
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock..

<table>
<tr><th>Parts</th><th>Explanation Photo</th><th>Explanation</th></tr>
<tr><td rowspan="4">
Surface elements and Ceramic Glass Cooktop</td><td> </td><td>1. Unplug the cord or disconnect power
2. Open oven door and remove the 3 screws located at the front of the cook-top, then close the door.</td></tr>
<tr><td> </td><td></td></tr>
<tr><td colspan="2">3 Slightly lift up and pull up the cook-top and then unplug the 2 connectors wire at the back by squeezing side tabs and unscrew ground wire.</td></tr>
<tr><td>  </td><td>4. Protect the cooktop surface and turn the assembly over.</td></tr>
</table>

3-4 Removing Surface elements and The Ceramic Glass Cooktop (Continued)

Parts	Explaination Photo	Explaination
Surface elements and Ceramic Glass Cooktop		**5.** To remove the surface elements **a)** Remove the wires from the element and limiter terminals. **b)** Remove the element bracket screw (shown above) for the element you are servicing. **c)** Carefully lift the bottom of the bracket just far enough to remove the element. **d)** Use sharp tool to remove the heating element. **REASSEMBLY NOTE**: When you reinstall the element make sure that the wires are inserted into the correct tap then reinstall the bracket screw to secure it to the cooktop.

* Reassembly of All part is the reverse order of disassembly.

Screw - Terminal Block Screw : M4 X 18. - The others : M4 X 12.

3-5 Removing The Latch-Door & Switch-Door Plunger

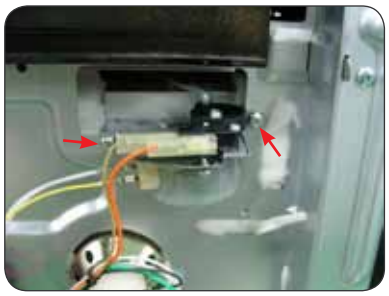
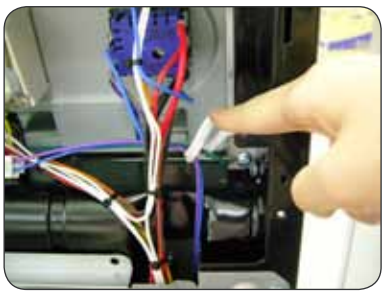
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Latch-Door & Switch-Door Plunger		**1.** Turn off the electrical supply going to the range. **2.** Open the oven door. **3.** Raise the cooktop (see page 15 for the procedure). **4.** To remove the Latch-Door: a) Remove the 2 screws from the front of cavity.
		b) Remove two screw from Cover-Back Main Guard and remove latch-door
		**5.** To remove the Switch-Door Plunger **a)** Remove the Cover-Back Guard Wire (see page 12 for the procedure). **b)** Release the wire from Cable Clamp. **c)** Remove the Switch-Door Plunger from the range. take out carefully with shaking up and down by using tool.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-6 Removing Heater-Broil

WARNING

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

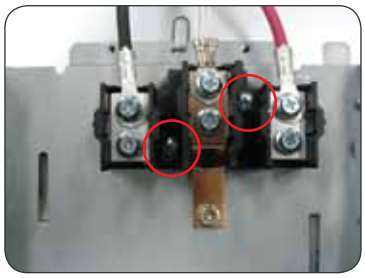
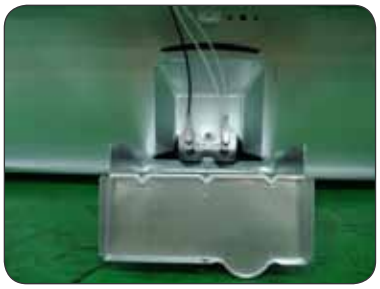
When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explaination Photo	Explaination
Broil		**1.** Turn off the electrical supply going to the range. **2.** Open the oven door and remove the racks from inside the oven. **3.** To remove the broil element. a) Remove the Sensor-Thermistor and 5 screws from the front and rear brackets. b) Remove Cover-Back Main Wire and disconnect 2 wires from Heater-Broil and a wire from Sensor-Thermistor.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

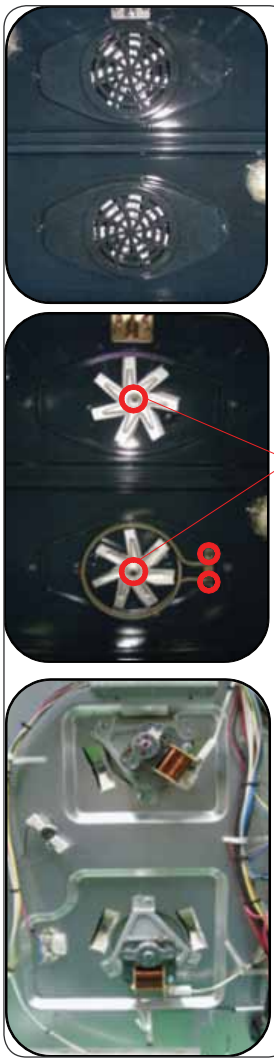
3-7 Removing Heater-Bake

Parts	Explanation Photo	Explanation
Heater-Bake	 	**1.** Unplug range or disconnect power. **2.** Pull the range out of its mounting location so that you can access the rear of the unit. **3.** Remove Cover-Back Main Wire. (See step 3~4 on page 12 for procedure) **4.** Remove Terminal-Block and Bracket-Cover Access(with Adiabatic-Terminal) by unscrew 3 points. **5.** Remove Cover-Warming Heater and disconnect 2 wires. **6.** Unscrew 2 points of Heater-Bake. **7.** Cut the Adiabatic-Rear based on the lower side. **8.** Carefully pull out Heater-Bake and replace it.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-8 Removing Convection Element, Fan-Covnection and Motor-Convection

Parts	Explaination Photo	Explaination
Convection Element, Fan-Convection , Motor-Convection	 Bracket convection heater	1. Disconnect power and remove oven racks. 2. Pull the range out of its mounting location so that you can access the rear of the unit. 3. Remove Cover-Back Main Wire from the unit. (See step 3 on page 12 for procedure) 4. Remove oven door. (See Page 25 on page for procedure) 5. Unscrew 2 screws and remove Cover-Casing. 6. Unscrew 2 screws and remove Bracket-Convection Heater to remove Heater-Convection. 7. Unscrew nut of Fan-Convection, and 2 Fan-Convection. 8. Unscrew 3 points and disconnect a Motor-Convection wire and disconnect Heater-Convection wire.

CAUTION

Be careful not to bend the Fan-Convection(Blade)

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-9 Removing Lamp

WARNING

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo
Lamp	

Explanation

1. Disconnect power.
2. Remove oven door.
3. Turn the glass bulb cover in the oven counterclockwise to remove.
4. Turn bulb counterclockwise to remove from socket.
5. Replace bulb and cover by turning clockwise.

CAUTION

Be careful not to scratch or chip the oven liner paint when to remove the oven light socket in the next step.

Explanation Photo	Explanation
	To replace socket assembly: 6. Disconnect the wires from the socket terminals. 7. Use a screwdriver and bend the clips on the socket away from the edges of the liner hole(there are 6 clips on th e socket), and pull the socket out of the liner. Push the socket out from the rear of the unit.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-10 Removing Sensor-Thermistor

WARNING

ELECTRICAL SHOCK HAZARD
Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Sensor-Thermistor	Upper Sensor	**1.** Turn off the electrical supply going to the range. **2.** Remove oven door and racks from inside the oven. **3.** Unscrew Sensor-Thermistor. **4.** Remove Cover-Back Main Wire and disconnect a wire from Sensor-Thermistor. **5.** Replace the Sensor-Thermistor.
	Lower Sensor	

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-11 Removing Assy-Partition Switch

WARNING

ELECTRICAL SHOCK HAZARD
Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explaination Photo	Explaination
Assy Partition Switch		1. Turn off the electrical supply going to the range. 2. Remove oven door and racks from inside the oven. 3. Remove Cover-Back Main Wire and disconnect a wire from Assy-Partiton Switch. 4. Unscrew Assy-Partition Switch. 5. Replace the Assy-Partition Switch.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-12 Removing Assy-Drawer & Heater-Warming Drawer

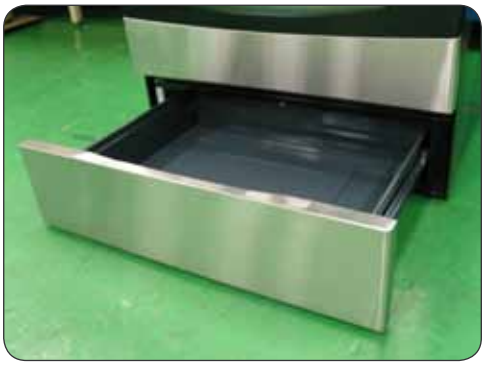
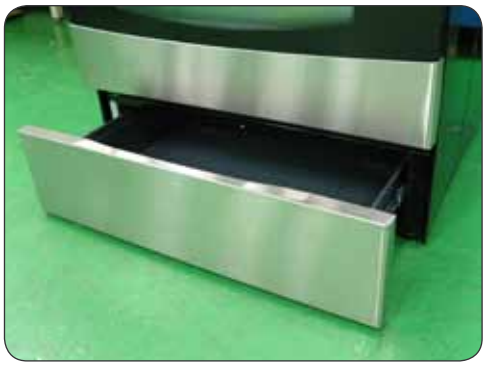
⚠ WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

⚠ PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

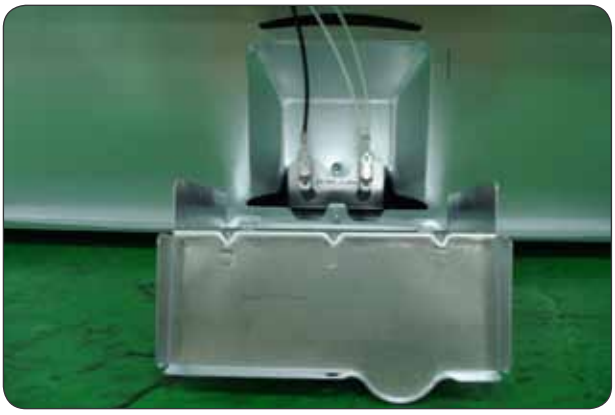
Parts	Explanation Photo
Assy-Drawer & Heater-Warming Drawer	 

Explanation

To remove Assy-Drawer:

1. CAUTION -Turn power OFF before removing the Warming Drawer.
2. Open the drawer to the fully opened position.
3. Locate glide lever on each side of drawer, push down on the left glide lever and pull up on the right glide lever.
4. Pull out the warning drawer.

3-12 Removing Assy-Drawer & Heater-Warming Drawer (Continued)

<table>
<tr><th>Parts</th><th>Explaination Photo</th><th>Explaination</th></tr>
<tr><td rowspan="2">Assy-Drawer & Heater-Warming Drawer</td><td> </td><td>To remove Heater-Warning Drawer:
1. Remove a screw from Bracket-Warming Heater.</td></tr>
<tr><td>  </td><td>2. Remove Cover-Warming Heater and disconnect 2 wires.
3. Pull out the Heater-Warming Drawer.</td></tr>
</table>

* Reassembly of All part is the reverse order of disassembly.

Screw - Terminal Block Screw : M4 X 18. - The others : M4 X 12.

3-13 Removing and Replacing Oven Door

WARNING

The door is very heavy. Be careful when removing door Do not lift door up by the Handle-Door.

Parts	Explanation Photo	Explanation
Oven door		**To remove Oven Door:** **1.** Fully open the door **2.** Pull the hinge locks downward(Fig.1)
		3. Firmly grasp both side of the door at the top. **4.** Close door to the door removal position, which is approximately 5 degrees. (refer to the Fig.2) Lift door up and out until the hinge arm are clear of the slot.
	 	To replace door: **1.** Firmly grasp both sides of the door at the top position.
		2. Fully open the door. (If the door will not fully open, it means that the indentation is not seated correctly in the bottom edge of the slot. Push the hinge locks up to the locked position.) **3.** Close the oven door.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-14 Removing Handle-Door and Glass-Inner

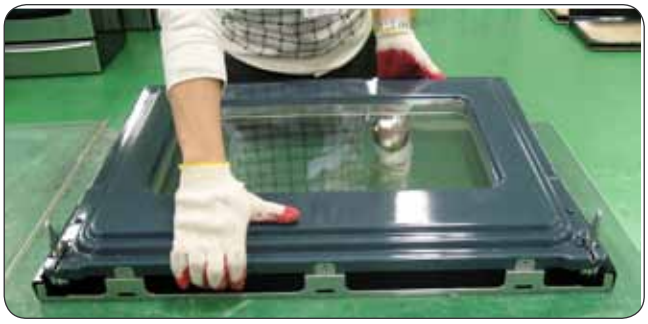
⚠ WARNING

ELECTRICAL SHOCK HAZARD

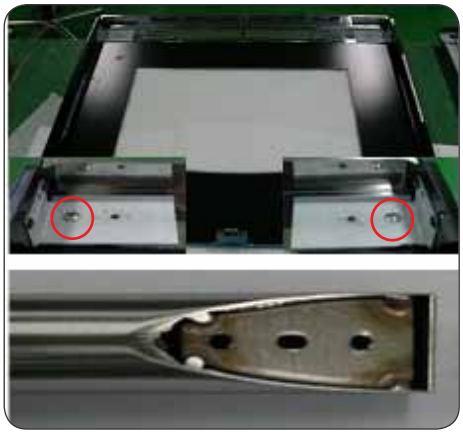
Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

⚠ PRECAUTION

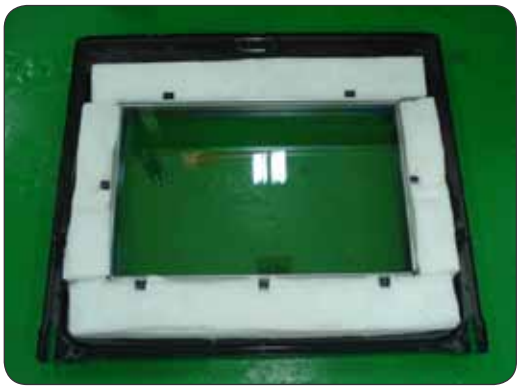
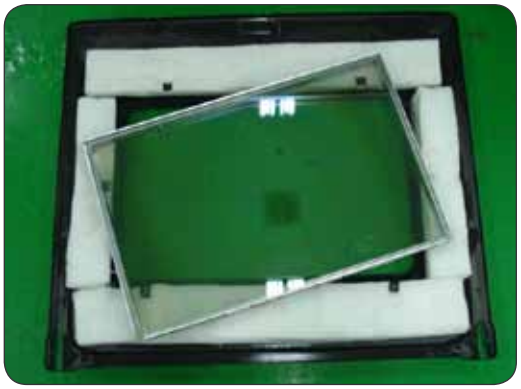
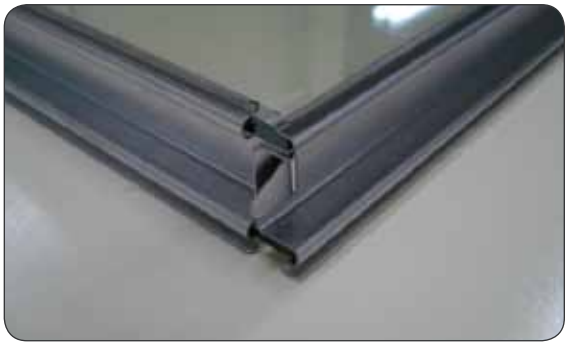
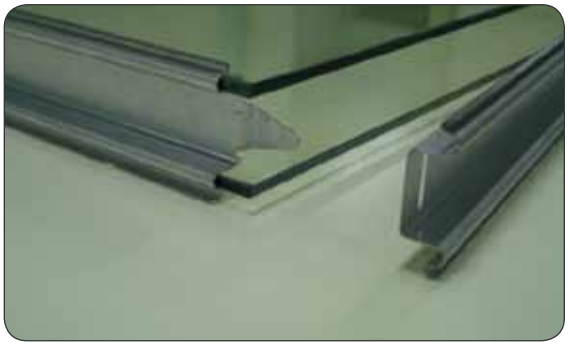
When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explaination Photo	Explaination
Door		**1.** Remove the oven door from the range (see page 25 for the procedure.) **2.** Place the oven door on a padded work surface with the front glass facing down. **3.** Remove 3 bottom screws from the door.
		4. Remove 2 Handle-screws from the door.
		**5.** Lift the door rear assembly off the front assembly and set it aside
		6. Remove 2 spacers and 2 screws.

3-14 Removing Handle-Door and Glass-Inner (Continued)

Parts	Explanation Photo	Explanation
Handle Door		**To remove Handle-Door** **1.** Remove 2 screws to remove Handle-Door
Glass-Inner	 	**To remove Glass-Inner** **1.** Remove 6screws from rear side of door to remove 2 Hinge-Door.
		2. Remove 4screws ro remove Glass-Inner Sub Assembly **3.** Remove 7screws ro remove Baffle-Door

3-14 Removing Handle-Door and Glass-Inner (Continued)

<table>
<tr><th>Parts</th><th>Explanation Photo</th></tr>
<tr><td rowspan="5">Handle
Door</td><td>   </td></tr>
<tr><td>Explanation</td></tr>
<tr><td>4. Remove Baffle-Door and take out the Glass-Inner assembly.</td></tr>
<tr><td>Explanation Photo</td></tr>
<tr><td>   </td></tr>
<tr><td>Explanation</td></tr>
<tr><td>5. Unfold 2 flanges of Cover-Frame Inner Glass to taking out Glass-Inner</td></tr>
</table>

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-15 Removing Gasket-Door

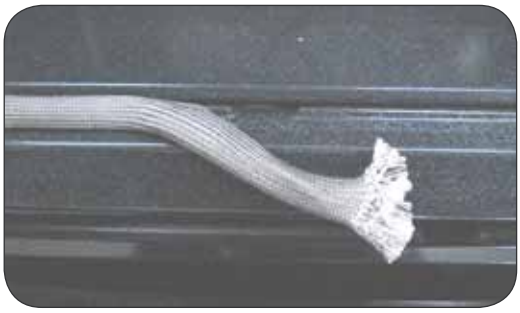
⚠ WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

⚠ PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo
Gasket door	
	Explanation
	1. Open the oven door to its fully down position. **2.** Pull the ends of the gasket out of the liner holes. **3.** Pull the oven door gasket clips out of the holes until all of the clips are removed.
	REASSEMBLY NOTE: When you install the new gasket, make sure that all of the clips are seated in their liner holes, and that the ends of the gasket are pushed fully into their holes. Use the pointed end of a pencil to push the gasket ends into the holes.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

3-16 Removing The Panel-Side

WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Panel Side		**1.** Turn off the electrical supply. **2.** Remove the oven door from the range (see page 3-12 for the procedure). **3.** Pull the range away from the wall so you can access the back of the unit. **4.** Remove the 8 screws from the rear of Panel-Side and remove Cooktop. **5.** Remove the (each) 3screws from the top the Panel-Side. **6.** Pull the back of the side panel out from the range approximately 10˚ **7.** Push forward and remove Panel-Side.

* Reassembly of All part is the reverse order of disassembly.

Screw
- Terminal Block Screw : M4 X 18.
- The others : M4 X 12.

4-1 Failure Display Codes

There is a error code and two kinds of error codes. Possible error codes during use can be checked before service.

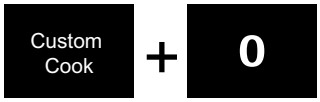
1. Press CLOCK pad.

2. Press CLOCK pad again.

3. Press a number 1, 2, 3, 4 pad.

4. Press SET/START pad.

5. Press CUSTOM COOK and number 0 pads at the same time for 2 seconds.Error codes are displayed.



6. Press number 0 pad, the latest 5 error codes can be checked. But, if the oven turns off, the stored error codes are deleted.

7. Press CLEAR/OFF pad to return to normal display mode.

Oven sensor error (Measure or Check tool : Multimeter)

Failure code	CAUSE	SOLUTION
E-27	oven sensor opened (over 2950Ω)	**1.** Disconnect power. Open the back cover. Disconnect sensor harness from control Measure sensor resistance :1080Ω at the room temperature → If there are any problems, replace oven sensor. **2.** If there is not any problem with oven sensor, Please check whether there is a damaged therminal or wire on harness. **3.** Check resistance of oven sensor connector on main PCB (Normal:2850Ω)
E-28	Oven sensor shorted. (Under 930Ω)	

4-1 Failure Display Codes

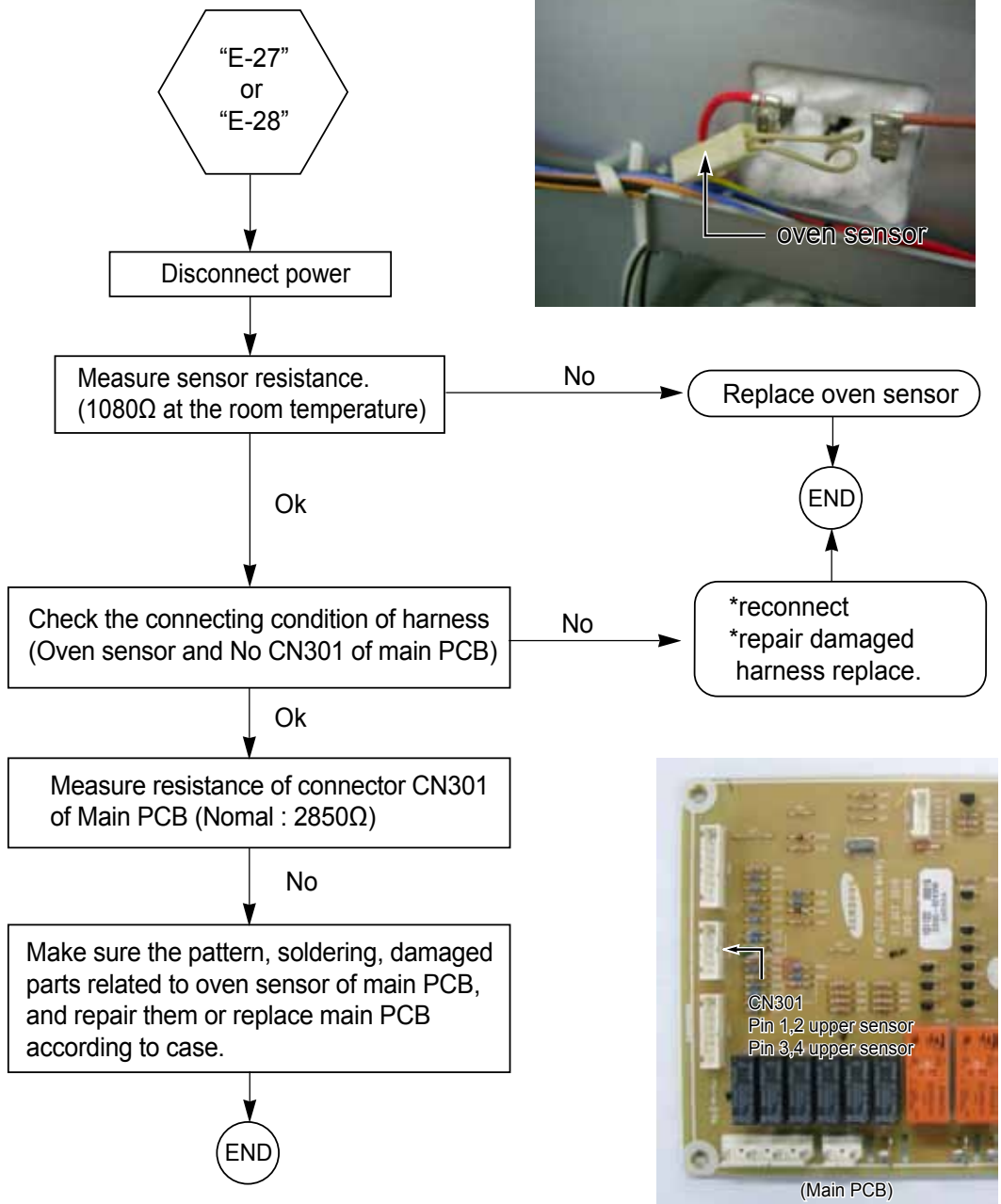
Safety error

Failure code	CAUSE	SOLUTION
E-08	Oven heating error	1. Disconnect power. Open the back cover. Disconnect sensor harness from control. Measure sensor resistance:1080Ω at the room temperature → If there are any problems, replace oven sensor. 2. Check the broil, bake and convection heater. Check the resistance of the each heater. 3. Check whether DLB of Main PCB, Broil, Bake and Convection heater relay are being worked normally. 4. Check whether there is any disconnection of harness which is linked with main PCB on sub PCB. 5. Check the resistance of oven sensor connector on main PCB. (Normal : 2850Ω)
E-0A	Oven heating over	
- SE -	Shorted key	1. Check whether cable of keypad has been inserted into connector of Sub PCB. 2. Check whether between Sub PCB and connector or keypad and cable have a short circuit. 3. If there is not a problem occurred with connector on Sub PCB and cable of keypad, replace the Sub PCB.
E-0E	Door locking error	1. Disconnect power. Open the back cover. Check wether harness has been connected with door lock switch and motor. 2. Confirm whether resistance value of door lock motor is to be normal one or not. 3. With operating door lockout, measure a voltage of connector on harness which is linked with door lock motor. (Normal Voltage : AC 120V) 4. Check whether door locking switch is being worked normally.
E-0C	Partition switch error	1. Disconnect power. Open the back cover. Check whether harness has been connected with assy-partition switch. 2. Confirm whether resistance value of assy-partition-switch is to be normal one or not.

4-1 Failure Display Codes

Safety error

Failure code	CAUSE	SOLUTION
E-27	oven sensor opened (over 2950Ω)	**1)** After 20 seconds from starting to work of oven, buzzer is beeping 10 times long and then finally it displays “E-27” or “E-28” as Error message. **2)** If a series of function for error is not performed at all, please make sure through the method of 4-1 on 31 page.
E-28	Oven sensor shorted. (Under 940Ω)	



(Main PCB)

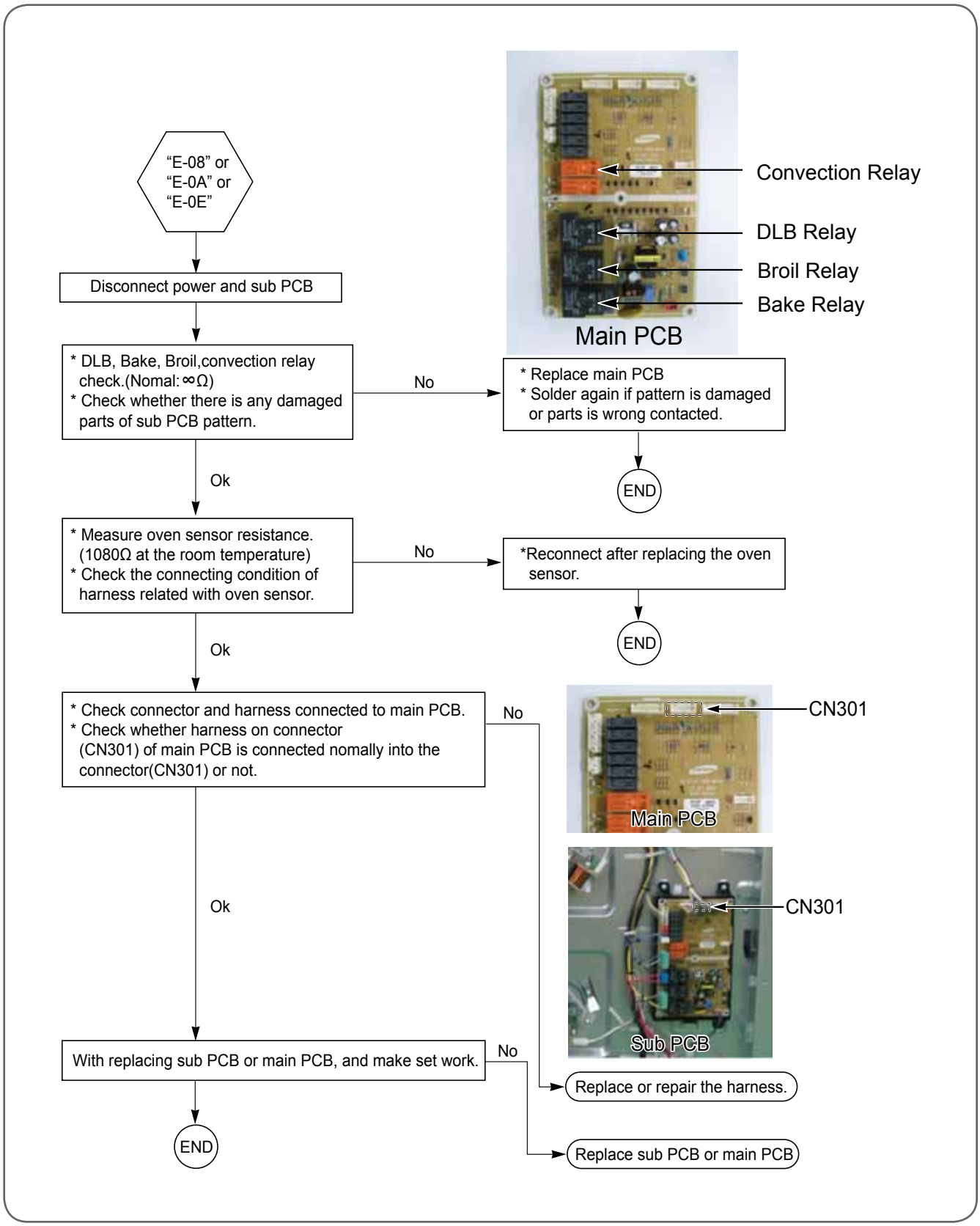
4-1 Failure Display Codes

Safety error

Failure code	CAUSE	SOLUTION
E-08	oven heating error	**1)** It will display “E-08” after buzzer is beeping 10 times long if it could not reach 100˚F(38˚c) within 10 minutes during oven is working. **2)** Please make sure through the method of 4-1 on 31 page, if if those series of working for informing error take long time or not functioned.
E-0A	Oven heating over	**1)** It will display “E-0A” after beeping 10 times Bz long, if temperature is more than 600˚F(316˚c) during oven is working excluding the case of self-cleaning. **2)** Please make sure through the method of 4-1 on 31 page, if those series of working for informing error take long time or not functioned.

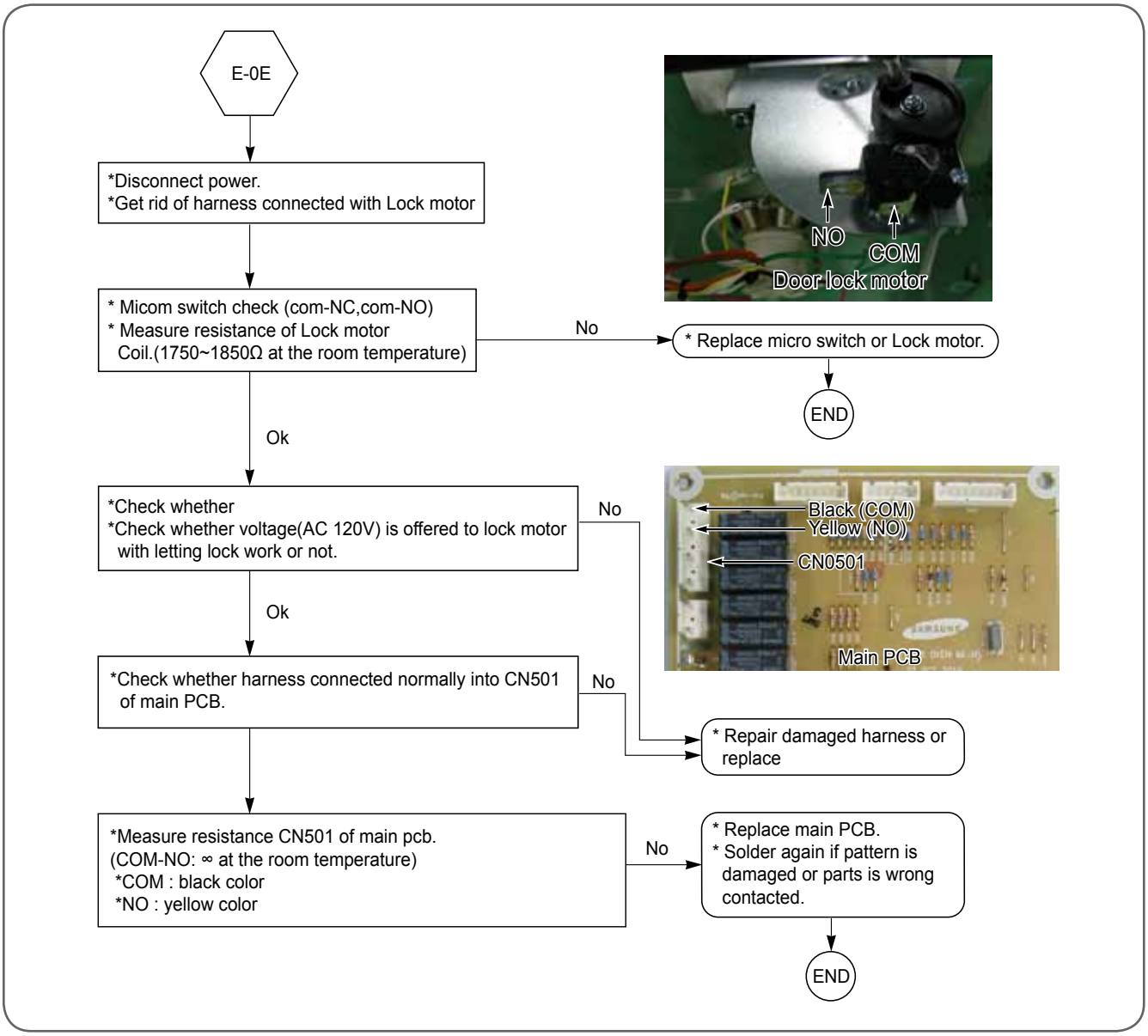
4-1 Failure Display Codes

Safety error


"E-08" or "E-0A" or "E-0E"
Disconnect power and sub PCB
* DLB, Bake, Broil,convection relay check.(Nomal: ∞Ω)
* Check whether there is any damaged parts of sub PCB pattern.
No
* Replace main PCB
* Solder again if pattern is damaged or parts is wrong contacted.
END
Ok
* Measure oven sensor resistance. (1080Ω at the room temperature)
* Check the connecting condition of harness related with oven sensor.
No
*Reconnect after replacing the oven sensor.
END
Ok
* Check connector and harness connected to main PCB.
* Check whether harness on connector (CN301) of main PCB is connected nomally into the connector(CN301) or not.
No
Ok
With replacing sub PCB or main PCB, and make set work.
No
END
Replace or repair the harness.
Replace sub PCB or main PCB
Convection Relay
DLB Relay
Broil Relay
Bake Relay
Main PCB
CN301
Main PCB
CN301
Sub PCB

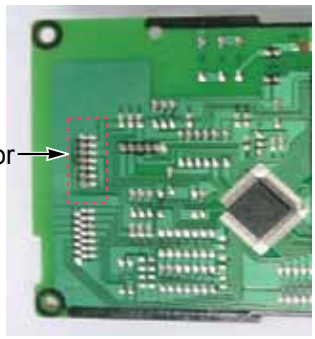
4-1 Failure Display Codes

Failure code	CAUSE	SOLUTION
E-0E	Door locking error	*Control lockout(press cooking time and Delay start pads at the same time for 3 seconds.) When 1 minute elapsed, It will display “E-0E” after buzzer is beeping 10 times long, if locking is occurred continually, or door locking is not working during self-cleaning or steam is being operated. Please make sure through the method of 4-1 on 31 page if those series of working for informing error take long time or not functioned.

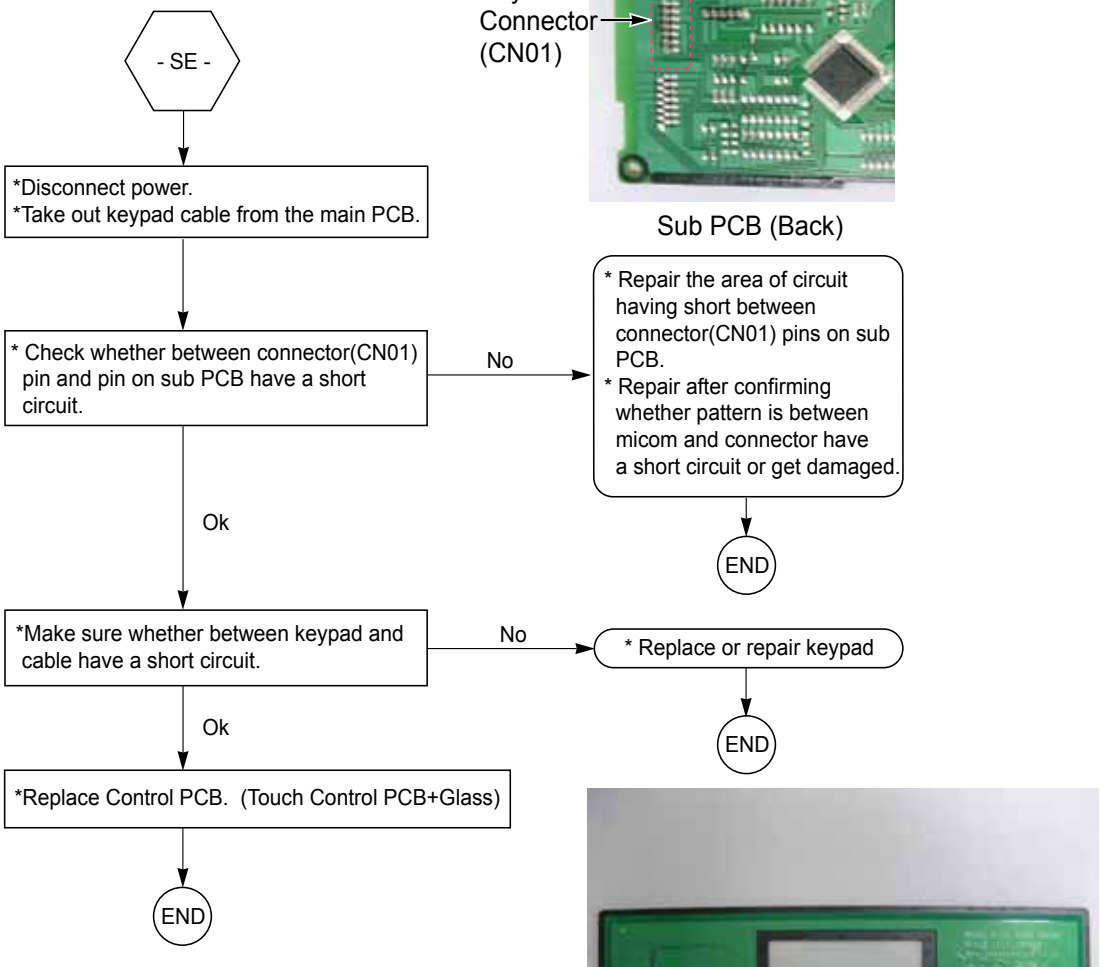


4-1 Failure Display Codes

Failure code	CAUSE	SOLUTION
-SE-	short key	When 10 seconds elapses, It will display "-SE-" after buzzer is beeping 10 times long if between main PCB and cable connector or keypad and cable have a short circuit. Please make sure through the method of 4-1 on 31 page if those series of working for informing error take long time or not functioned.



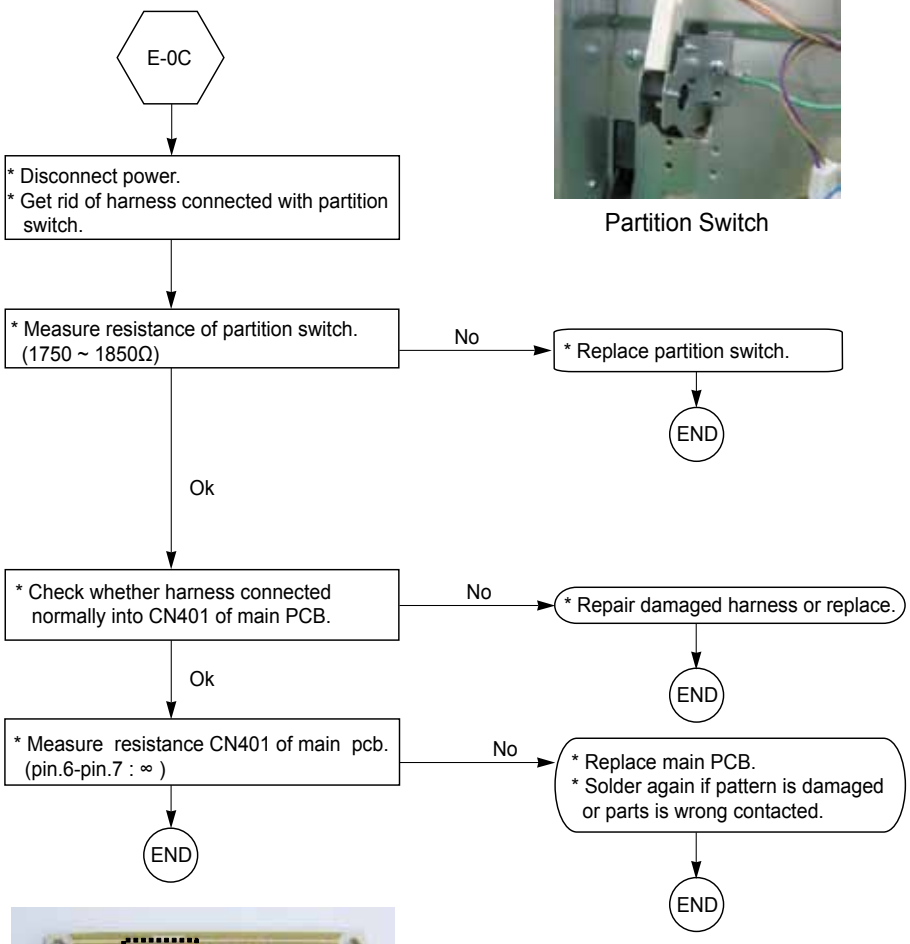
Sub PCB (Back)

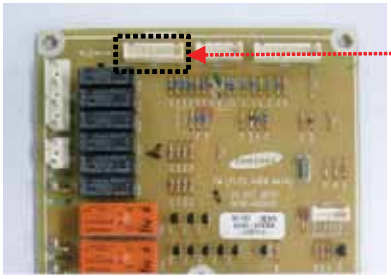

- SE -
*Disconnect power.
*Take out keypad cable from the main PCB.
* Check whether between connector(CN01) pin and pin on sub PCB have a short circuit.
No
* Repair the area of circuit having short between connector(CN01) pins on sub PCB.
* Repair after confirming whether pattern is between micom and connector have a short circuit or get damaged.
END
Ok
*Make sure whether between keypad and cable have a short circuit.
No
* Replace or repair keypad
END
Ok
*Replace Control PCB. (Touch Control PCB+Glass)
END

4-1 Failure Display Codes

Failure code	CAUSE	SOLUTION
E-0C	Partition switch error	"* It will display ""E-0C"" and buzzer 5 times , if you put in or take out the partition during the oven operate, when you operate single oven cooking with partition or twin oven cooking with out partition. * Please make sure through the method of 4-1 on 31 page if those series of working for informing error take long time or not functioned."

Partition Switch


E-0C
* Disconnect power.
* Get rid of harness connected with partition switch.
* Measure resistance of partition switch. (1750 ~ 1850Ω)
No
* Replace partition switch.
END
Ok
* Check whether harness connected normally into CN401 of main PCB.
No
* Repair damaged harness or replace.
END
Ok
* Measure resistance CN401 of main pcb. (pin.6-pin.7 : ∞)
No
* Replace main PCB.
* Solder again if pattern is damaged or parts is wrong contacted.
END
END

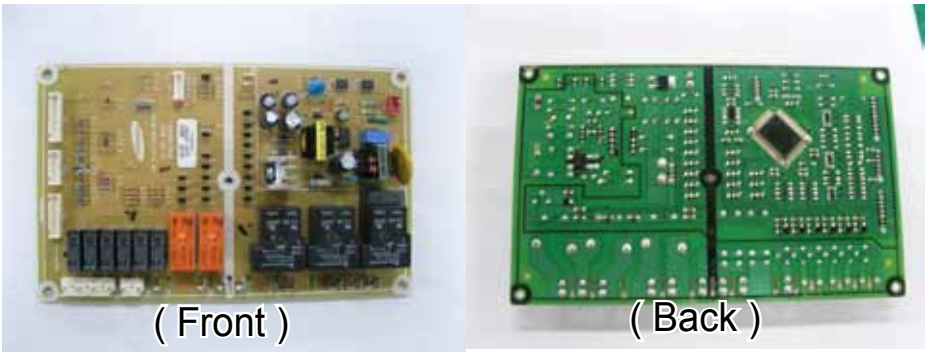


4-1 Failure Display Codes

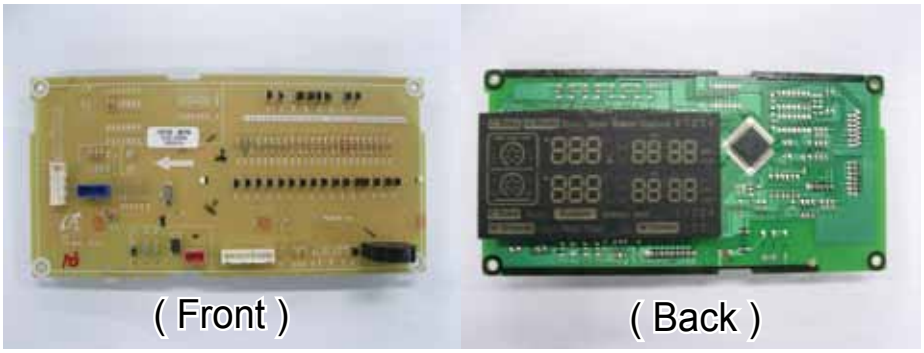
Control PCB Operation

Sort of Control PCB

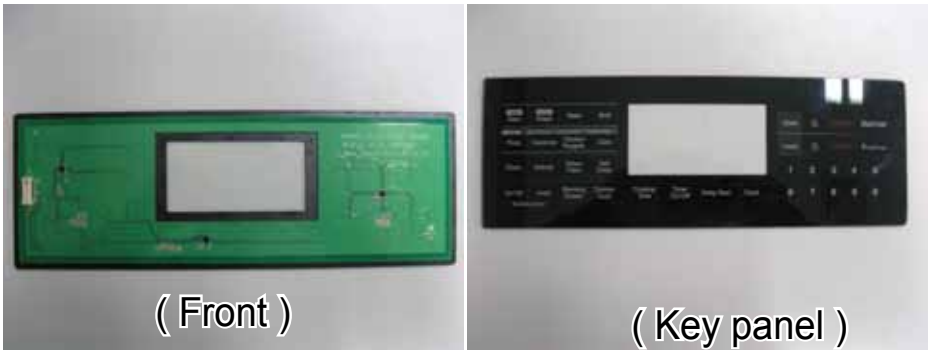
Main PCB



Sub PCB

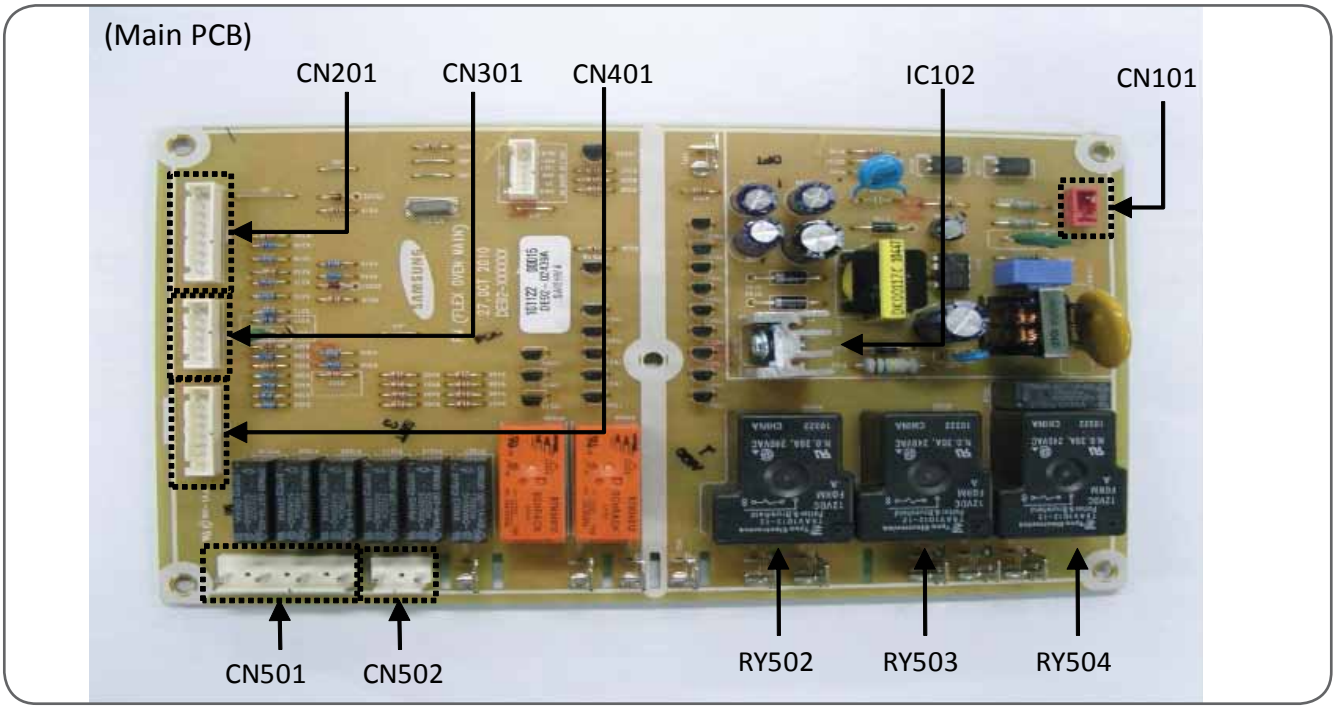


Touch control PCB



4-1 Failure Display Codes

* Explain of primary parts of Main PCB

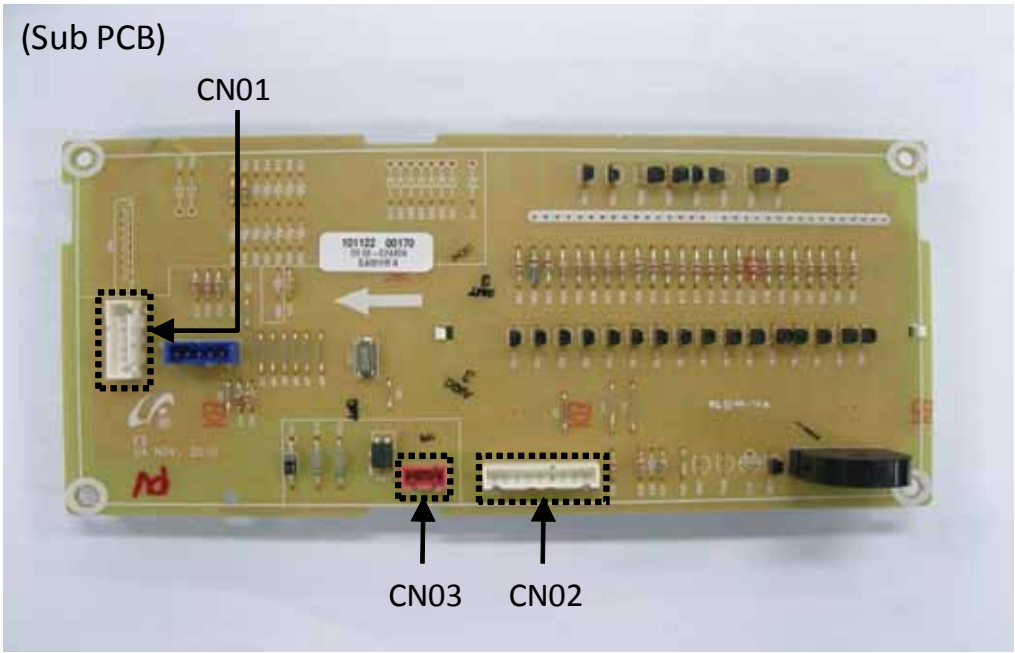


Explatin of the function of primary parts.

CN101	This is to supply power with SMPS.
CN201	This is connector which is connected with Sub PCB to communicate.
CN301	This connector which is connected with oven sensor.
CN401	This is connector which is connected with Door plunger switch and Door lock switch, partition switch.
CN501	This connector which have Door plunger switch, upper lamp and relay of upper convection fan connected.
CN502	This connector which have lower lamp and relay of lower convection fan connected.
RY-Source Relay(RY501)	This is relay which control source of DLB,BAKE,BROIL, W/Drawer relay.
DLB Relay(RY502)	Circuit is designed to have broil relay or convection relay worked after DLB relay is being worked by Double line break. (It will not be problem with reversing the order in inserting Red)
"Broil Relay(RY503), Bake Relay(RY504), Relay(RY505)"	Broil relay(Ry503), Bake relay(Ry504), convection relay(Ry505) will be on-off working by mi-com signal after DLB relay is worked. (Broil relay : It will not be problem with reversing the order in inserting Brown) (Bake relay : It will not be problem with reversing the order in inserting Blue)
W/Drawer Relay(RY506)	This is relay to control Warming Drawer-Heater.
IC102	This is to supply DC 12V with main PCB by voltage regulator.

4-1 Failure Display Codes

Explain primary parts of Sub PCB



Explatin of the function of primary parts.

CN01	This is consisted of 7 pin and take a role of getting a cable on keypad to connect with touch PCB.
CN02	This is connector which is connected with Main PCB to communicate.
CN03	This is stopoperating self-cleaning and steam mode if hot indicator lamp on cooktop is lighted with being supplied with AC120V(L1, N).
CN05	When do micom revision, connect to micom writer. (No connection at normal times)

4-1 Failure Display Codes

* Explain primary parts of Touch Control PCB

1. Touch control PCB : This is circuit PCB to have keypad worked.

If touch control PCB become inferior you should replace all of the PCB assembly of touch control (Glass + touch control PCB).

2. keypad cable : keypad cable is to connect main PCB with touch control PCB.

3. Touch glass : Touch glass is to guide keypad by touching this. The user can make oven work.

SYMPTOM	DIAGNOSIS	REMEDY
oven not operating (No power, No display)	* Measure an input voltage. (240/120V or 208/120V) * Measure an input voltage of terminal block.	* check circuit breaker. * Make sure that the state of wire is connected with Terminal block.
	* Measure voltage of connector (CN101) on main PCB L1~N : 120V	* Replace of repair if harness has been loosen or disconnected.
	* Make sure that the relay on Main PCB is being worked normally. * Make sure whether harness between connector (CN201) on main PCB and connector (CN02) on sub PCB has been loosen or disconnected.	* Replace main PCB if relay has been damaged or there is any cracking on the main PCB. * Repair harness is connected sub PCB with main PCB. * After confirming whether harness has been inserted into relay on main PCB or not, take action follow as; - Replace or repair harness. - Replace or repair main PCB.
	* Measure resistance both ends of terminal on thermostat. (normal : 0 ohoms) * Check whether harness is connected terminal on thermostat has been loosen or disconnected. * Measure voltage regulator (IC02) on main PCB. - IC02 : 7812(DC 12V)	* Replace the thermostat. * Replace or repair harness. * Replace or repair after confirming the state of working of main PCB.
Oven temperature is risen slowly.	* It will display “E-08” if it fail to reach 100˚F(38˚C) within 10 minute in a state of room temperature.	* Replace after checking whether there is any problem with oven sensor. (1080Ω at the Room temperature)
	* Make sure whether harness is connected with Broil, Bake and convection heater has been loosen or disconnected.	* Repair and replace harness.
	* Make sure whether Broil, Bake, and convection heater has been disconnected.	* After taking out terminal from each heater, measure resistance of heater and then replace that if it is not a normal resistance value.
	* Make sure that heater relay and pattern on Main PCB.	* Replace or repair relay. * Replace or repair Main PCB.

4. Troubleshooting

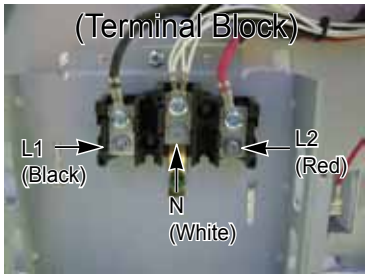
SYMPTOM	DIAGNOSIS	REMEDY
Oven temperature is risen fast.	* Check whtether temperature is risen over 400˚F(202˚C) within 10 minutes in a state of room temperature.	* Replace or repair it if relay on sub PCB or main have a short circuit.
	* Check whether harness has been misconnected or have a short circuit.	* Replace or repair harness.
	* Measure resistance values of each heater are within a normal extent or not.	* Replace heater is in a abnormal state.
The self-cleaning feature will not operate when warming center or warming drawer is on.	* This is in normal state.	* The self-cleaning feature will not operate when warming center or warming drawer is on.
Keypad is not worked normally in partially or entirely.	Make sure that keypad cable on touch PCB is in normal state.	Replace after confirming whether it has been loosen or disconnected.
	Make sure connector (CN01) on sub PCB.	Replace or repair after confirming whether keypad cable has been loosen or disconnted.
	Check whether touch control PCB has been damaged.	Replace assembly of touch control pcb. (PCB + Glass touch)
Warmer drawer heating is not working.	* Check warmer drawer relay (RY506) on main PCB and terminal (T508).	* Replace terminal(T508) or relay(RY506). * Replace main PCB.
	* Measure whether resistance value of warmer drawer heater is in normal extent or not.	* Replace warmer drawer heater.
Upper oven lamp is not working.	* Check the upper oven lamp relay (RY509) on main PCB and connector (CN501).	* Replace or repair if harness has been loosen or disconnected. * Replace upper oven lamp relay (RY509) or RY source relay (RY507). * Replace main PCB.
	Measure the resistance value of both ends of lamp terminal.	* Replace lamp if it has been disconneted. (120V / 400W)
lower oven lamp is not working.	* Check the lower oven lamp relay (RY512) on main PCB and connector (CN502).	* Replace or repair if harness has been loosen or disconnected. * Replace upper oven lamp relay (RY512) or RY source relay (RY507). * Replace main PCB.
	Measure the resistance value of both ends of lamp terminal	* Replace lamp if it has been disconneted. (120V / 400W)

4. Troubleshooting

SYMPTOM	DIAGNOSIS	REMEDY
Cooktop is not working or being occurred a abnormal working.	* Make sure that Radiant element or Infinite switch corresponded RR(Right Rear), RF(Right Front), LR(Left Rear), LF(Left Front).	* Replace Infinite switch or Radiant element.
	* Check whether harness is connected with radiant element or Infinite switch has been loosen or disconnected. * Check whether there is any crack or the area of being disconnected of harness.	* Replace or repair harness
	* Measure whether RC(Rear Center) Heater has been connected with warming center relay(RY507) on Main PCB normally or not.	* Replace or repair Warming Center. relay(RY507) * Replace or repair Warming Ry-source relay. * Replace Main PCB. * Replace or repair if harness has been loosen or disconnected.
Convection fan is not rotated.	Check whether Convection fan relay (upper : RY508, lower : RY511) on main PCB and connector(upper : CN501, lower : CN502) is in normal.	* Replace or repair relay. * Replace or repair connector.
	Make sure whether harness between connector(CN201) on main PCB and connector(CN02) on sub PCB has been connected normally.	* Replace or repair harness. * Replace or repair connector. * Replace main PCB.
It has smell or smoke when oven has been started initially.	This is in normal state.	* It has smell or smoke with burning dirt in oven or a foreign substance when oven has been working initially. * Ventilate after getting self cleaning mode to work.
LED display is a little bit dim partially or invisible entirely.	* LED display is inferior.	* Replace Sub PCB.
There is not buzzer beep sound when keypad is being worked.	Check the state of buzzer on Sub PCB and whether PCB pattern have a short circuit or has been open.	* Replace or repair Sub PCB.

4-2 Electrical Malfunction

Safety error



L1 ◄► L2 : 240V
L1 ◄► N : 120V
L2 ◄► N : 120V

No power
or
No display

* Check terminal block voltage.
AC 240V/120V or AC 206V/120V

No → * Reset the circuit breaker or check main power. → END

Yes

*Thermostat open check. (150°c / 0°c)

No → * Replace Thermostat.

Yes

*Check the pin voltage of connector
(CN01) on Main PCB.
(Input voltage : 120V)

No → * Reconnect and replace or repair harness is damaged. → END

Yes

* Check the pin voltage of connector
(CN02 pin 8,9) on Sub PCB.
(Input voltage : 12V)

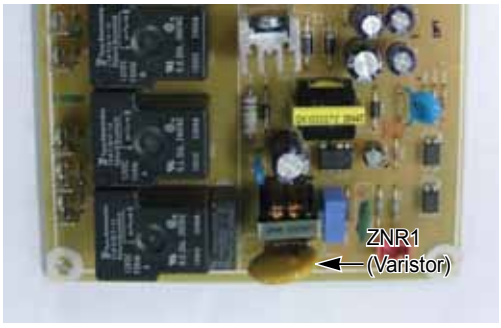
* Check whether varistor (ZNR101) on Main PCB has been damaged.

Yes → * Replace Main PCB.

Yes

No → * Reconnect and replace harness.

* Replace Main PCB.



4-2 Electrical Malfunction

Cooktop No heating or Abnormal working

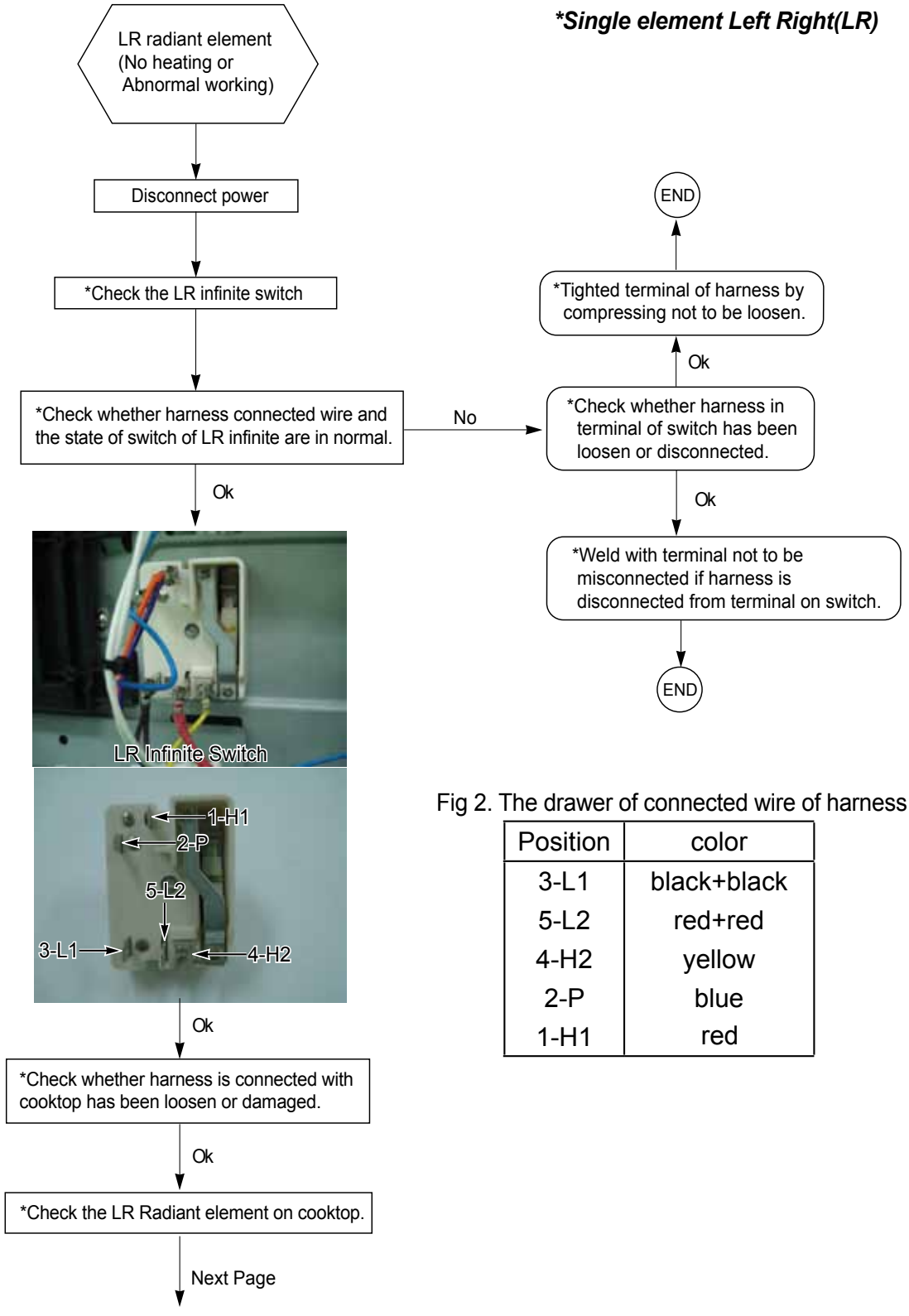

*Single element Left Right(LR)
LR radiant element (No heating or Abnormal working)
Disconnect power
*Check the LR infinite switch
*Check whether harness connected wire and the state of switch of LR infinite are in normal.
No
Ok
*Check whether harness in terminal of switch has been loosen or disconnected.
Ok
*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch.
END
*Tighted terminal of harness by compressing not to be loosen.
Ok
END
LR Infinite Switch
1-H1
2-P
5-L2
3-L1
4-H2
Ok
*Check whether harness is connected with cooktop has been loosen or damaged.
Ok
*Check the LR Radiant element on cooktop.
Next Page

Fig 2. The drawer of connected wire of harness

Position	color
3-L1	black+black
5-L2	red+red
4-H2	yellow
2-P	blue
1-H1	red

4-2 Electrical Malfunction

(Continued)

LR radiant element
(No heating or
Abnormal working)

* Check the element of LR Radiant

*Check whether harness connected wire and the state of element of LR radiant are in normal.

No

*Check whether harness in terminal of radiant has been loosen or disconnected.

Ok

*Tighted terminal of harness by compressing not to be loosen.

Ok

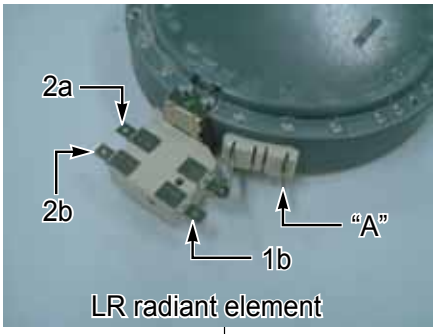
END

Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on radiant.

END

Ok



Ok

*Check whether harness is connected with LR infinite switch has been damaged or disconnected.

END

WARNING

It is very dangerous when radiant heater is working in case that harness has misconnected

Fig3. LR radiant element

Position	ohms
1b-2b	∞
2a-"A"	45~50Ω

Fig4. The drawer of connected wire of Harness

Position	color	remark
"A"	red	240V,1200W
2a	yellow	165N8-L6871R
1b	black+brown	single element
2b	yellow+yellow	Ceramaspeed Co.

4-2 Electrical Malfunction

(Continued)

Dual element Right Front(LF)

LF radiant element (No heating or abnomal working)

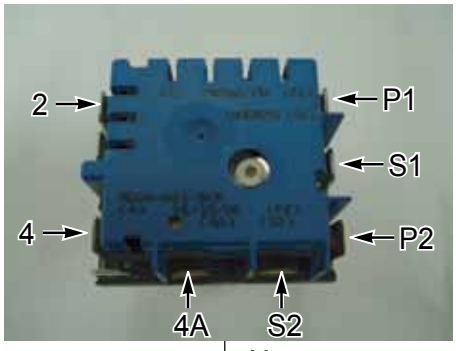
* Disconnect power

* Check theLF infinite switch

*Check whether harness connected wire and the state of LF infinite switch are in normal

No

Yes



Yes

*Check whether harness is connected with cooktop has been loosen or damaged.

*Check the element of LF Radiant on cooktop.

Next Page

*Check whether harness in terminal of switch has been loosen or disconnected.

Yes

*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch.

END

Yes

*Tighted terminal of harness by compressing not to be loosen.

Yes

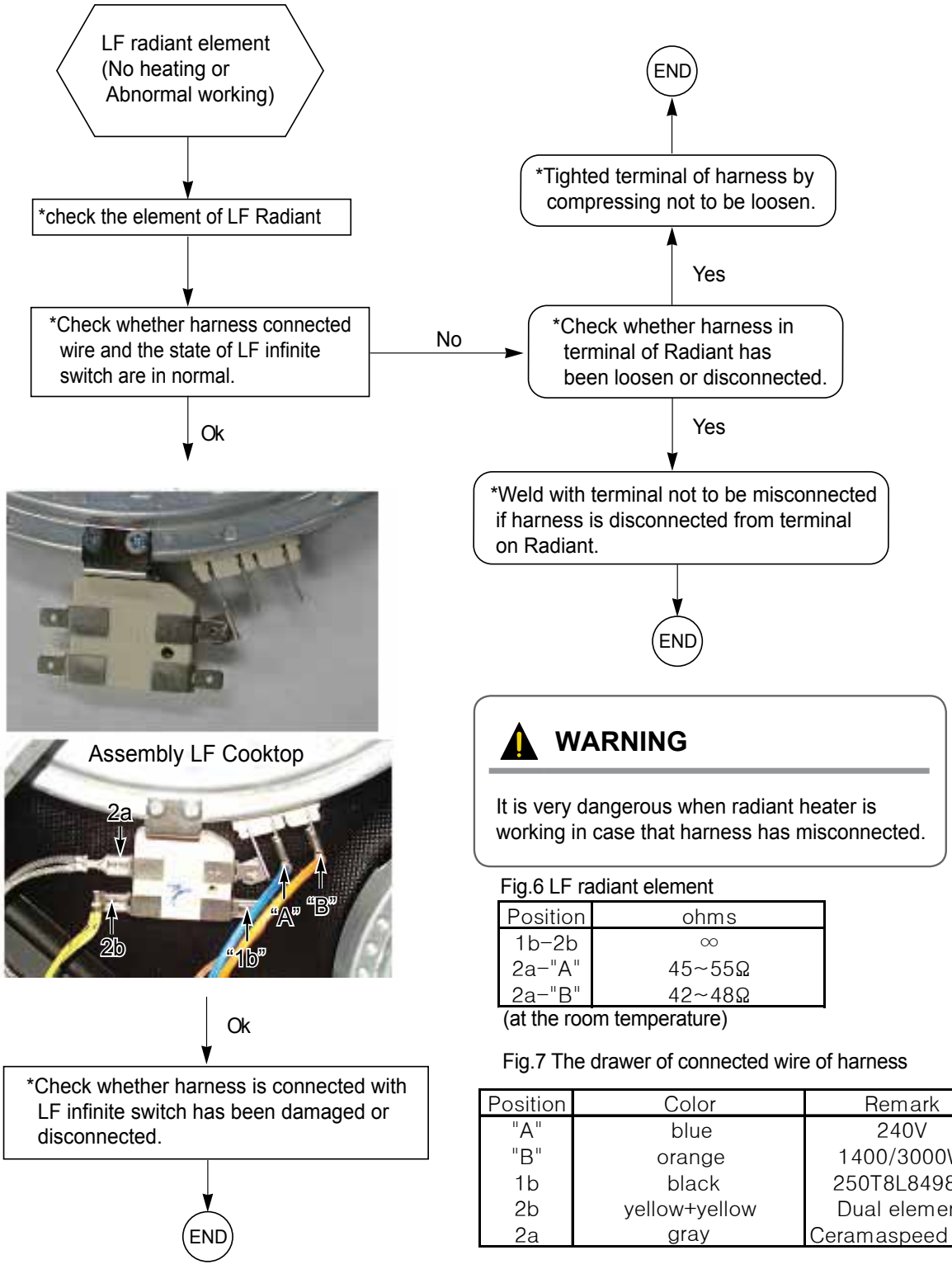
END

Fig.5 The drawer of connected wire of Harness

Position	Color	Remark
P1	red+red	240V,3600W dual switch Invensys Co.
S1	black+brown	
P2	black+black	
S2	blue(Indicator lamp)	
4A	orange	
4	gray	
2	blue	

4-2 Electrical Malfunction

(Continued)


LF radiant element
(No heating or
Abnormal working)
*check the element of LF Radiant
*Check whether harness connected wire and the state of LF infinite switch are in normal.
No
Ok
*Check whether harness in terminal of Radiant has been loosen or disconnected.
Yes
*Tighted terminal of harness by compressing not to be loosen.
Yes
*Weld with terminal not to be misconnected if harness is disconnected from terminal on Radiant.
END
END
Assembly LF Cooktop
2a
2b
"A"
"B"
"1b"
Ok
*Check whether harness is connected with LF infinite switch has been damaged or disconnected.
END

WARNING

It is very dangerous when radiant heater is working in case that harness has misconnected.

Fig.6 LF radiant element

Position	ohms
1b-2b	∞
2a-"A"	45~55Ω
2a-"B"	42~48Ω

(at the room temperature)

Fig.7 The drawer of connected wire of harness

Position	Color	Remark
"A"	blue	240V
"B"	orange	1400/3000W
1b	black	250T8L8498R
2b	yellow+yellow	Dual element
2a	gray	Ceramaspeed CO.

4-2 Electrical Malfunction

***Single element Right Rear(RR)**

RR radiant element (No heating or abnomal working)

* Disconnect power

* Check the RR infinite switch

*Check whether harness connected wire and the state of switch of RR Radiant are in normal.

No

*Check whether harness in terminal on switch has been loosen or disconnected.

Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch.

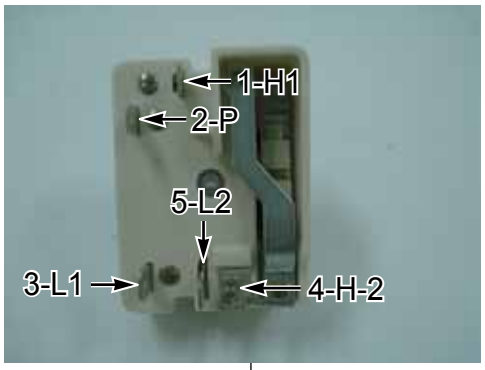
Ok

*Tighted terminal of harness by compressing not to be loosen.

Ok

END

Ok



Ok

*Check whether harness is connected with cooktop has been damaged or disconnected.

*Check the element of RR Radiant on Cooktop.

Next Page

Fig.8 The drawer of connected wire of Harness

Position	Color
3-L1	black+black
5-L2	red
4-H2	yellow
2-P	blue
1-H1	orange

4-2 Electrical Malfunction

(Continued)

RR radiant element
(No heating or
Abnormal working)

*Check the element of RR Radiant

*Check whether harness connected wire and the state of element of RR Radiant are in normal.

No

*Check whether harness in terminal of Radiant has been loosen or disconnected.

Ok

*Tighted terminal of harness by compressing not to be loosen.

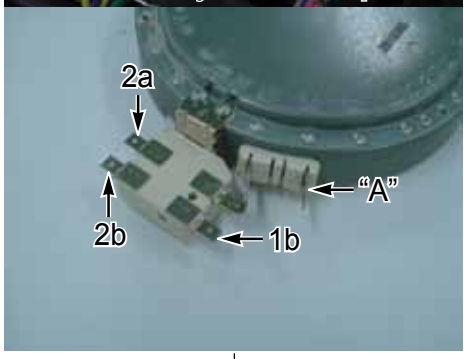
Ok

END

Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on Radiant.

END



Ok

*Check whether harness is connected with RR infinite switch has been damaged or disconnected.

WARNING

It is very dangerous when radiant heater is working in case that harness has misconnected.

Fig.9 RR radiant element

Position	ohms
1b-2b	∞
2a-"A"	45~50Ω

(at the room temperature)

Fig.10 The drawer of connected wire of harness

Position	color	remark
"A"	orange	240V,1200W
2a	yellow	single element
1b	brown+violet	
2b	yellow+black	

4-2 Electrical Malfunction

***Triple element Right Rear(RF)**

RF radiant element
(No heating or
Abnormal working)

* Disconnect power

* Check RF infinite switch

*Check whether harness connected wire and the state of switch of RF infinite are in normal.

No

*Check whether harness in terminal of switch has been loosen or disconnected.

Ok

*Tighten terminal of harness by compressing not to be loosen.

Ok

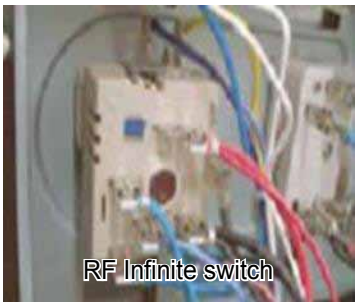
END

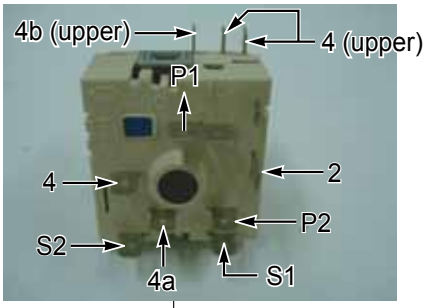
Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch

END

Ok





Ok

*Check whether harness is connected with cooktop has been damaged or disconnected.

Ok

*Check the element of RF Radiant on Cooktop.

Next page

Fig.11 The drawer of connected wire of harness

Position	color	remark
P1	black + black	240V,3600W Triple switch Invensys Co.
S1	brown + black	
P2	red + red	
S2	blue (indicator lamp)	
4A	red	
4	blue + sky	
2	gray	
4B(upper)	sky	
4(upper)	white	

4-2 Electrical Malfunction

(Continued)

RF radiant element
(No heating or
Abnormal working)

*check the element of RF Radiant

*Check whether harness connected wire and the state of element of RF radiant are in normal.

No

*Check whether harness in terminal of Radiant has been loosen or disconnected.

Ok

*Tighten terminal of harness by compressing not to be loosen.

Ok

END

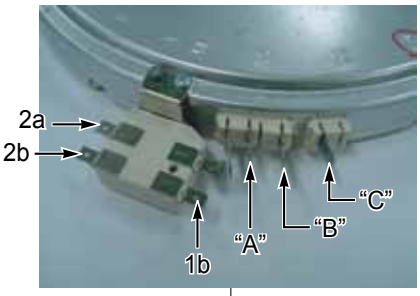
Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch.

Ok

END

Ok



Ok

*Check whether harness is connected with RF infinite switch has been damaged or disconnected.

Ok

END

WARNING

It is very dangerous when radiant heater is working in case that harness has misconnected.

Fig.12 RF radiant element

Position	ohms
1b-2b	∞
2a-"A"	48~55Ω
2a-"B"	48~55Ω
2a-"C"	70~75Ω

(at the room temperature)

Fig.13 The drawer of connected wire of harness

Position	color	remark
"A"	blue	240V 1100/2200/3000W Triple element
"B"	orange	
"C"	violet	
1b	violet	
2b	yellow + yellow	
2a	gray	

4-2 Electrical Malfunction

RC radiant element
(No heating or
Abnormal working)

* Disconnect power

*Check warming center relay on Main PCB.

No

*Check whether PCB pattern have a short circuit or Relay (RY507) has been damaged.

Ok

*Replace relay or repair PCB pattern.

Ok

END

Ok

* Check whether harness in terminal(CN201) of main PCB has been loosen or disconnected.

Ok

* Check whether harness is between connector(CN02) on sub PCB and connector(CN201) on main PCB has been connected normally.

No

*Tighten terminal of harness by compressing not to be loosen.

No

*Make sure whether connector(CN02) on main PCB is being worked well and PCB pattern have a short circuit or get disconnected.

Ok

END

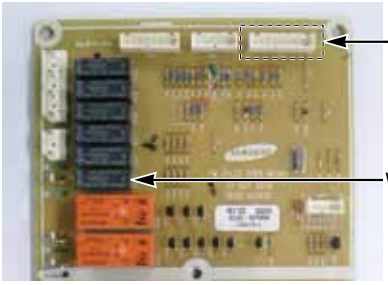
Ok

*Check whether harness is connected with cooktop has been damaged or disconnected.

Ok

*Check RC Radiant element of cooktop.

Next page



Main PCB

Sub PCB

4-2 Electrical Malfunction

(Continued)

RC radiant element
(No heating or
Abnormal working)

*Check element of RC radiant.

*Check whether harness connected wire and the state of element of RC radiant are in normal.

No

*Check whether harness in terminal of radiant has been loosen or disconnected.

Ok

*Tighten terminal of harness by compressing not to be loosen.

Ok

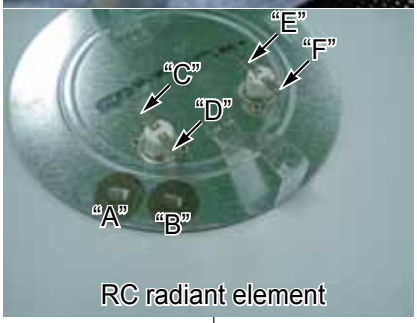
END

Ok

*Weld with terminal not to be misconnected if harness is disconnected from terminal on switch.

END

Ok



Ok

*Check whether harness is connected with warming zone relay on sub PCB has been damaged or disconnected.

Ok

END

WARNING

It is very dangerous when radiant heater is working in case that harness has misconnected.

Fig.14 RC radiant element

Position	ohms
"A"-"B"	560~600Ω
"C"-"D"	∞Ω
"E"-"F"	0Ω

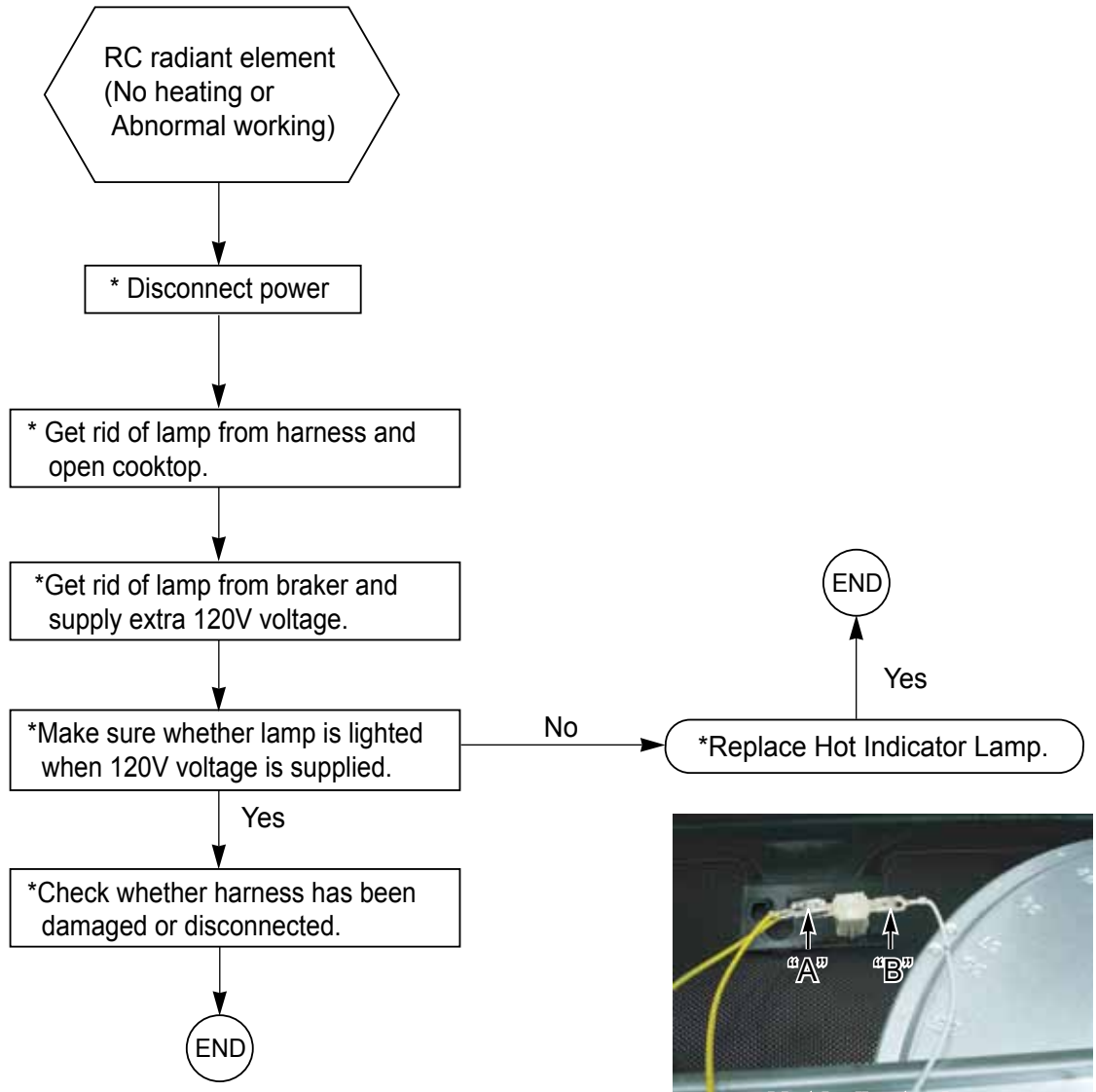
(at the room temperature)

Fig.15 The drawer of connected wire of harness

Position	color	remark
"A"	violet or gray	
"B"	gray or violet	120V,100W
"C"	yellow	
"D"	yellow	warmer element
"E"	violet	
"F"	violet	

4-2 Electrical Malfunction

Hot indicator Lamp failure (cooktop)



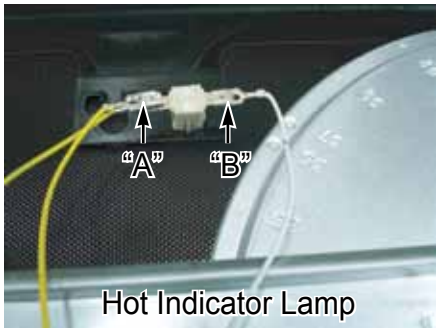


Fig. 16 The drawer of connected wire of harness

Position	Color
A	yellow+yellow
B	white

WARNING

Having a short circuit might cause fire or damage of infinite switch if harness is misconnected during cooktop is being worked.

(* Warning : Having a short circuit of harness color to be turned "Yellow+white" might cause fire or damage of infinite switch.)

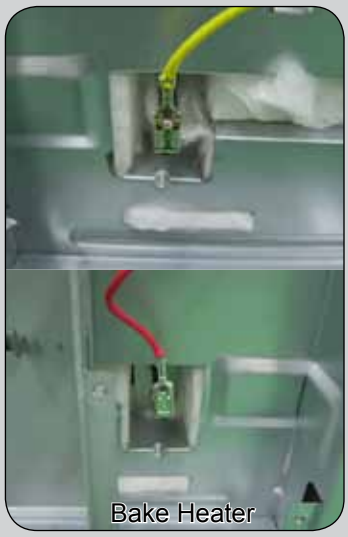
4-2 Electrical Malfunction

Component testing procedures

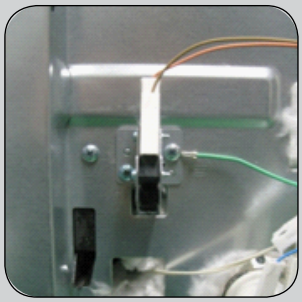
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

FIGURE	TESTS MEASURE	RESULTS
Broil Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing broil keypad.	* Approx : 13 ~ 16Ω (at the room temperature) * Terminal voltage of Broil heater : AC 240V * Replace or repair harness * Replace or repair main PCB
 Bake Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to on-off cycling work.)	* Approx : 26 ~ 30Ω (at the room temperature) * Terminal voltage of bake heater : AC 240V * Replace or repair harness * Replace or repair main PCB
Convection Heater	* Measure the resistance values of heater's terminal after taking off harness from heater. * Measure the voltage of heater's terminal after having oven worked, by pressing convection bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to on-off cycling work.)	* Approx : 70 ~ 73Ω(at the room temperature) * Terminal voltage of convection heater : AC 240V * Replace or repair harness * Replace or repair main PCB
Drawer Heater	* Measure the resistance of values of heater, after taking off harness from heater. * Measure the terminal voltage of heater after making oven work by pressing warming drawer keypad.	* Approx : 22 ~ 25Ω (at the room temperature) * Terminal voltage of Drawer heater : AC 120V * Replace or repaire harness * Replace or repaire main PCB

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
Door Lock	* Measure the state of micro switch and motor after taking off harness from the heater. * Check whether lock work normally by pressing cooking time button and delay start keypad at the same time for 3 seconds.	* Lock motor Resistance : 1750 ~ 1850Ω (at the room temperature) voltage : 120V * Micro switch COM-NO * Replace or repair if harness has been loosen or disconnected.
Oven Lamp Socket	* First of all, make sure that lamp filament is disconnected or not. * Measure resistance socket's terminal after separating harness from heater and removing lamp. * Measure the voltage of socket's terminal after having lamp worked by pressing oven light keypad.	* Approx : ∞ Ω * Terminal voltage of lamp socket : 120V * Replace or repair harness. * Replace or repair main PCB
Upper Convection Fan Lower Convection Fan	* Measure resistance value of Motor terminal after taking off harness from Motor. * Measure Voltage of Motor's terminal after making oven work by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because Fan is supposed to on-off Cycling work.)	**Approx** * Convection Fan : 20 ~ 30Ω * Terminal Voltage of Convection Fan : 120V * Replace or repair harness * Replace or repair main PCB.
 < Partition Switch>	* Mesure the state of partition switch after taking off harness.	* Partition Switch Resistance : 1750 ~ 1850Ω * Replace or repair if harness has been loosen or disconnected.

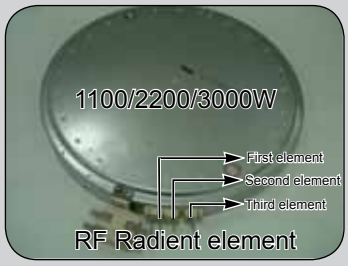
4-2 Electrical Malfunction

<table>
<tr><th>FIGURE</th><th>TESTS MEASURE</th><th>RESULTS</th></tr>
<tr><td>
LR Infinite Switch (Single)</td><td>* Check whether harness is connected with switch properly.
H1 : red
P : blue
H2 : yellow L2 : red + red
L1 : black + black
* Measure the voltage and resistance between terminals. (Please refer to schematic diagram)
* Check whether power level is right with making LR cooktop work.</td><td rowspan="2">Approx
* Resistance between terminals when switch is off : ∞ Ω
* When switch is on(HI) resistance
H1-L1-P : 0Ω
L2-H2 : 0Ω
* When switch is on(HI) voltage
L2=H2 ↔ H1=L1:240V
L1=P ↔ LR surface Lamp :120V
* Replace or repair harness</td></tr>
<tr><td>
RR Infinite Switch (Single)</td><td>* Check whether harness is connected with switch properly.
H1 : orange
P : blue
H2 : yellow L2 : red
L1 : black + black
* Measure voltage and resistance between terminals. (Please refer to schematic diagram)
* Check whether power level is right with making RR cooktop work.</td></tr>
<tr><td>
LF Infinite Switch (Dual)</td><td>* Check whether harness is connected with switch properly.
P1 : red + red
S1 : brown + black
P2 : black + black
S2 : blue (indicator lamp)
4A : orange
4 : gray
2 : blue
* Measure voltage and resistance between terminals. (Please refer to schematic diagram)
* Check whether power level is right with making LF cooktop work.</td><td>Approx
* Resistance between terminals when switch is off : ∞ Ω
* When switch is on(HI, Max.)
P1-2-4A : 0 Ω
S1-S2 : 0 Ω
P2-4 : 0 Ω
* When switch is on(HI, Max.) voltage
P1=2=4A ↔ P2=4 : 240V
S1=S2 ↔ LF suface lamp : 120V
* Replace or repair harness.</td></tr>
</table>

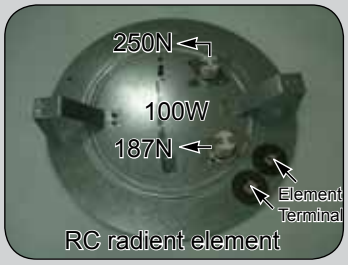
4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
RF Infinite switch (Triple)	* Check whether harness is connected with switch properly. P1 : black + black 2 : gray P2 : red + red S1 : brown + black 4A : red 4 : blue + sky S2 : blue (surface lamp) 4(upper) : white 4B(upper) : sky * Measure voltage and resistance between terminals. (Please refer to schematic diagram) * Check whether power level is right with making RF cooktop work.	**Approx** * Resistance between terminals when switch is off :∞ Ω * When switch is on(HI, Max.) P-2 : 0 Ω S1-S2 : 0 Ω P2-4 -4a : 0 Ω 4(upper)-4b(upper) : 0 Ω * When switch is on(HI, Max.) voltage P1=2 ↔ P2=4=4A : 240V S1=S2 ↔ RF suface lamp : 120V 4(upper) = 4b(upper) ↔ 2=p1 : 240V * Replace or repair harness.

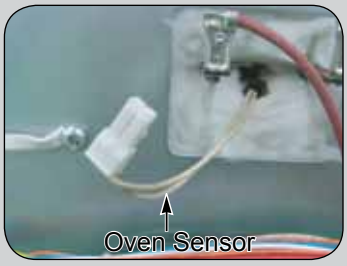
4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
	* Check whether harness is connected with terminal of element properly. element terminal : red (LR), orange (RR) 2a : yellow 1b : black + brown (LR) brown + violet (RR) 2b : yellow + yellow (LR) yellow + black (RR) * Measure voltage and resistance between terminals. (Please refer to schematic diagram)	**Approx** * Terminal resistance : 1b-2b= ∞ Ω 2a- element terminal : 45 ~ 50Ω (at the room temperature) * Voltage which supply radiant element 2a - element terminal:240V * Replace or repair harness.
	* Check whether harness is connected with terminal of element properly. First element terminal : blue Second element terminal : orange 1b : black 2a : gray 2b : yellow + yellow * Measure voltage and resistance between terminals. (Please refer to schematic diagram)	**Approx** * Terminal resistance : 1b-2b= ∞ Ω 2a-First element terminal: 38 ~ 42Ω 2a-second element terminal: 33 ~ 37Ω (at the room temperature) 2a - first or second terminal :240V * Replace or repair harness.
	* Check whether harness is connected with termial of element properly. First element terminal : blue Second element terminal : orange Third element terminal : violet 1b : violet 2a : gray 2b : yellow + yellow * Measure voltage and resistance between terminals. (Please refer to schematic diagram)	**Approx** * Terminal resistance : 1b-2b= ∞ Ω 2a-First or second element terminal: 48 ~ 55Ω 2a-third element terminal: 70 ~ 75Ω (at the room temperature) 2a - first or second or third terminal : 240V * Replace or repair harness.

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
	* Check whether harness is connected with terminal of element properly. - element terminal : violet, gray (It will not be problem with reversing the order in insering yellow and red.) 187 type TCO : yellow, yellow (It will not be problem with reversing the order in insering black and violet) 250 type TCO : violet, violet (It will not be problem with reversing the order in insering yellow and violet) * Measure voltage and resistance between terminals. (Please refer to schmatic diagram)	**Approx** * terminal resistance : 187 type TCO : ∞Ω 250 type TCO : 0Ω element terminal : 560 ~ 600Ω (at the room temperature) * element terminal : 240V * Replace or repair harness

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
Door plunger switch	* Check the state of working of switch. * Make sure whether wire, housing and terminal is connected with switch has been damaged or not.	Nomal open : 0Ω Nomal close :∞ Ω * Replace or repair if wire or terminal has been damaged.
Hot Surface Lamp (Cook top) Surface Lamp (Back Guard)	* Measure voltage which is supplied with lamp terminal. * Check whether harness has been loosen or disconnected.	**Approx.** * Lamp voltage :120V * resistance : ∞ Ω * Replace or repair if wire or terminal has been damaged.
 Oven Sensor	* Check whether the resistance values of oven sensor is same with a chart's one. * Check whether wire or housing has been loosen or disconnected.	**Approx.** at the room temperature : 1080Ω

4-2 Electrical Malfunction

Oven sensor resistance (Temperature vs. Sensor resistance)

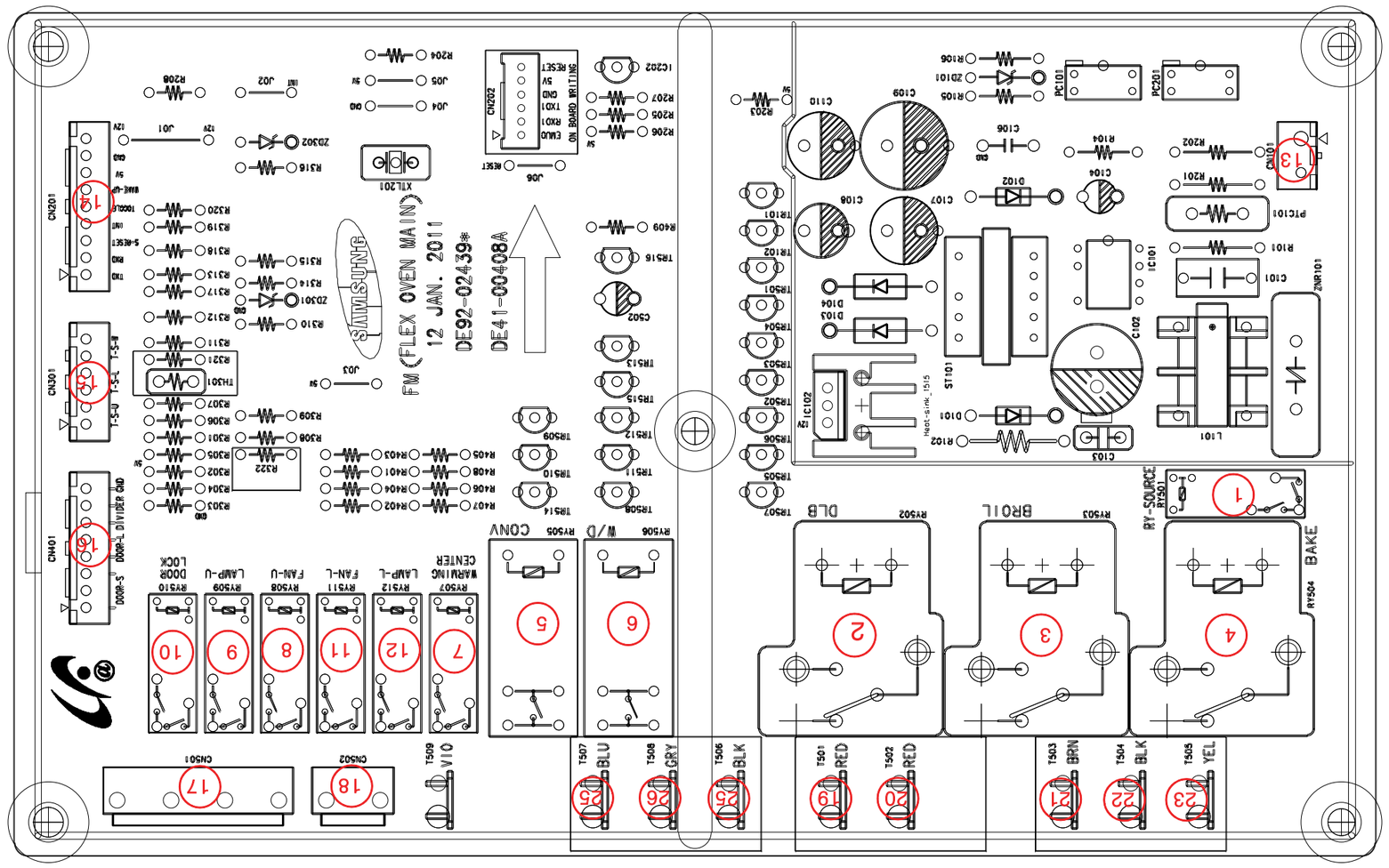
Ro = 1000 Ohms (0˚C), RP = 2757 Ohms, Up = 5V, a = 0.00375

degree F	degree C	ohms	degree F	degree C	ohms
0	-17.8	932.12	113	45	1170.17
14	-10	961.86	122	50	1188.93
23	-5	980.95	212	100	1374.93
32	0	1000.00	302	150	1558.01
41	5	1019.02	392	200	1738.06
50	10	1038.02	482	250	1915.39
59	15	1056.99	572	300	2089.69
68	20	1075.92	662	350	2261.07
77	25	1094.83	752	400	2429.52
86	30	1113.71	842	450	2595.05
95	35	1132.56	932	500	2757.65
104	40	1151.38	1000	538	2878.57

5-1 PCB Diagrams (Main)

(This Document can not be used without Samsung's authorization)

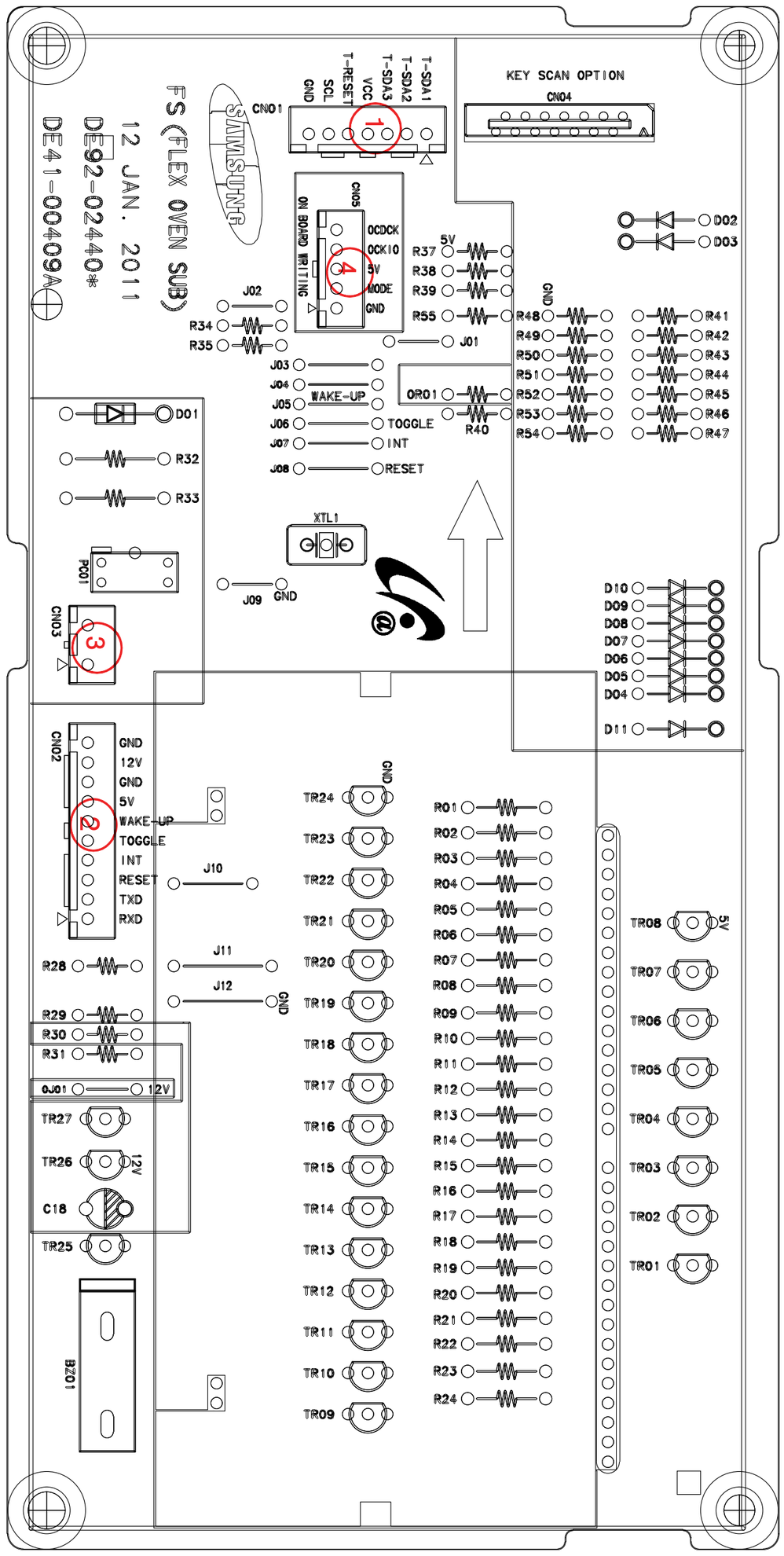
No.	Parts Number	Part Name	Function and Rule
1	RY501	RY-Source Relay	This is relay which control source of DLB,BAKE,BROIL, W/Drawer relay.
2	RY502	DLB Relay	Circuit is designed to have broil relay or convection relay worked after DLB relay is being worked by Double line break.(It will not be problem with reversing the order in inserting Red)
3	RY503	Broil-Heater Relay	"Broil relay(Ry503), Bake relay(Ry504), convection relay(Ry505) will be on-off working by mi-com signal after DLB relay is worked. (Broil relay : It will not be problem with reversing the order in inserting Brown) (Bake relay : It will not be problem with reversing the order in inserting Blue)
4	RY504	Bake-Heater Relay	
5	RY505	Conv-Heater Relay	
6	RY506	WD-Heater Relay	This is Relay to control Warming Drawer-Heater.
7	RY507	WC-Heater Relay	This is Relay to control Warming Centor-Heater.
8	RY508	Conv-Fan-U Relay	This is relay which is connected with Conv. Fan.
9	RY509	Conv-Lamp-U Relay	This is relay which is connected with Conv-Lamp-Upper
10	RY510	Door Lock Relay	This is relay which is connected with door lock motor.
11	RY511	Oven-Fan-L Relay	This is relay which is connected with Oven-Fan-Low.
12	RY512	Oven-Lamp-L Relay	This is relay which is connected with Oven-Lamp-Low.
13	CN101	Power Connector	This is to supply power with SMPS.
14	CN201	Sub Communication Connector	This is connector which is connected with Sub PCB to communicate.
15	CN301	Oven Sensing Connector	This connector which is connected with oven sensor.
16	CN401	Door Lock, Divider Connector	This is connector which is connected with Door plung switch and Door lock switch, divider switch.
17	CN501	Relay Connector	This connector which have Door plunger switch, upper lamp and relay of upper convection fan connected.
18	CN502	Relay Connector	This connector which have lower lamp and relay of lower convection fan connected
19	T501	DLB Terminal	This is terminal to connect harness with DLB relay.
20	T502		
21	T503	Broil Terminal	This is terminal to connect harness with Broil relay.
22	T504		
23	T505	Bake Terminal	This is terminal to connect harness with Bake relay.
24	T506	Convection-Heater Terminal	This is terminal to connect harness with convection-heater relay.
25	T507		
26	T508	WD-Heater Terminal	This is terminal to connect harness with relay to get heater on warming drawer work.
27	T509	WC-Heater Termainal	This is terminal to connect harness with relay to get heater on warming centor work.



5-2 PCB Diagrams (Sub)

(This Document can not be used without Samsung's authorization)

No.	Parts Number	Part Name	Function and Rule
1	CN01	Touch Communication Connector	"This is consisted of 7pin and take a role of getting a cable on keypad to connect with touch PCB"
2	CN02	Main Communication Connector	This is connector which is connected with Main PCB to communicate.
3	CN03	Hot Indicator lamp Sensing Connector	"This is for stopping operate self-cleaning and steam mode if hot indicator lamp on cooktop is lighted with being supplied with AC120V.(L1, M)"
4	CN05	On Board Writing Connector	When do micom revision, connect to micom writer. (No connection at normal times)



6-1 Wiring Diagrams

(This Document can not be used without Samsung's authorization)

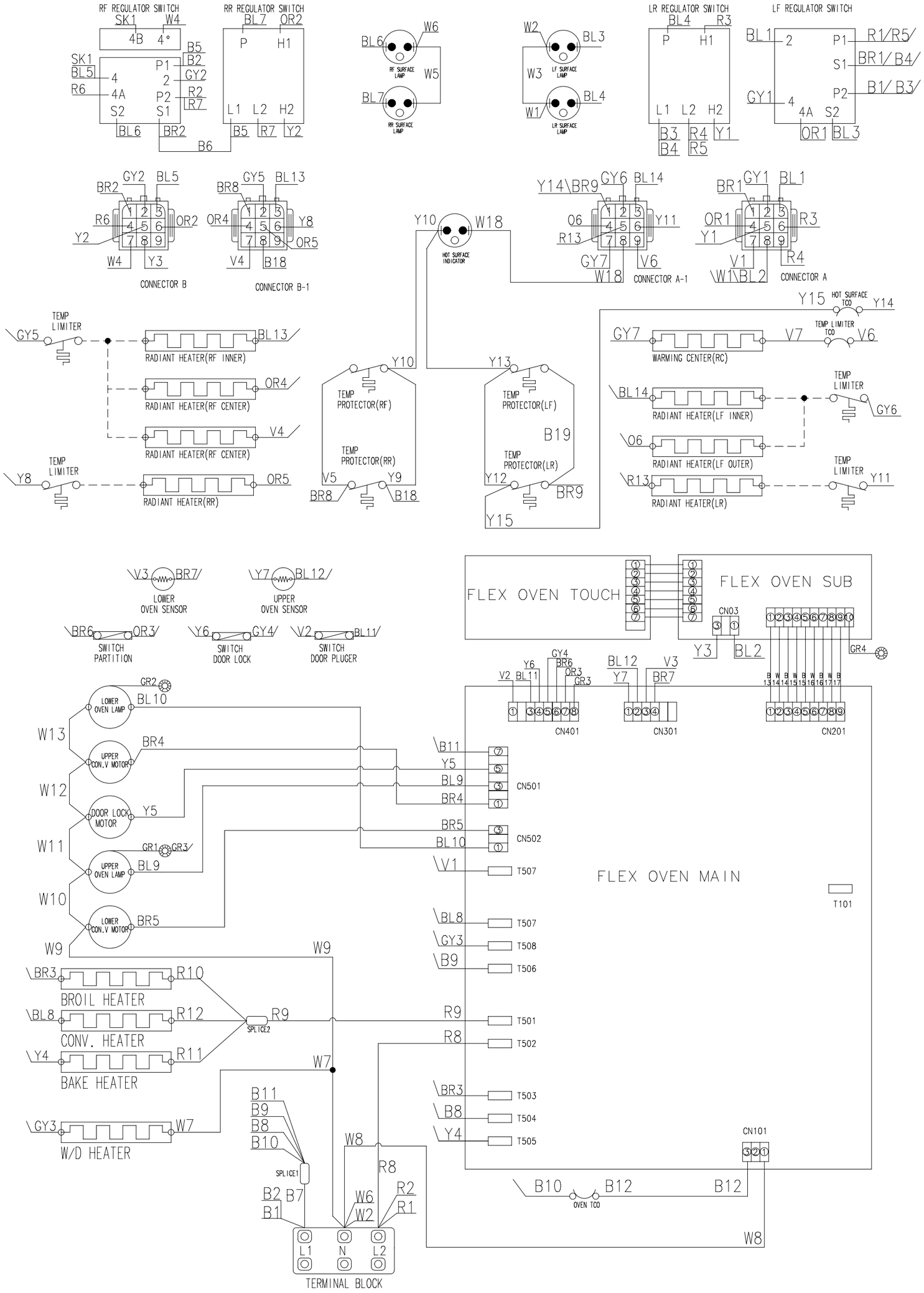
WIRING DIAGRAM

MODEL : FE710DRS/XAA

NOTE

1) INPUT POWER : AC240V 60Hz, 13800W, 57.5A
   1-1) OVEN HEATER. : MAX 5300W, 22.1A
   1-2) COOKTOP : MAX. 8500W, 35.4A
2) OVEN DOOR OPENED AND UNLOCKED

COLOR		COLOR	
R	RED	OR	ORANGE
W	WHITE	V	VIOLET
BL	BLUE	B	BLACK
Y	YELLOW	GY	GRAY
BR	BROWN	GR	GREEN



HEATING ELECMENTS

INDUCTION ELEMENTS		
COMPONENTS	INPUT	WATTAGE
RF RADIANT ELEMENT	240V	3000
LF RADIANT ELEMENT	240V	3000
RR RADIANT ELEMENT	240V	1200
LR RADIANT ELEMENT	240V	1200
RC WARMER ELEMENT	240V	100

OVEN HEATING ELECMENTS		
COMPONENTS	INPUT	WATTAGE
BAKE	240V	3000W
BROIL	240V	3800W
CONVECTION	240V	1250W
WARM DRAWER	120V	600W

7-1 Schematic Diagrams

(This Document can not be used without Samsung's authorization)

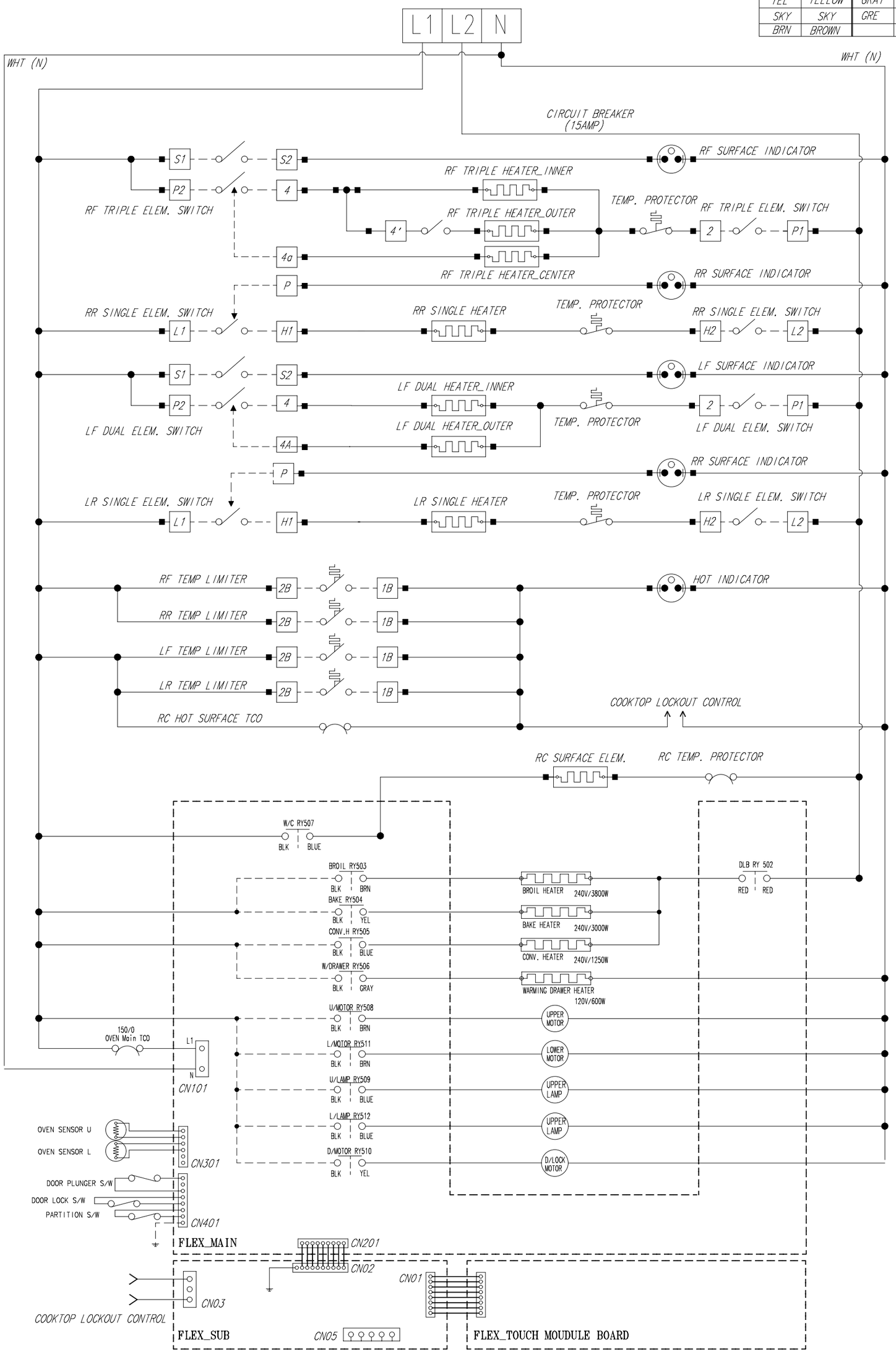
SCHEMATIC DIAGRAM

MODEL : FE710DRS/XAA

NOTE

1) INPUT POWER : AC240V 60Hz, 13800W, 57.5A
   1-1) OVEN HEATER. : MAX 5300W, 22.1A
   1-2) COOKTOP : MAX. 8500W, 35.4A
2) OVEN DOOR OPENED AND UNLOCKED

COLOR		COLOR	
RED	RED	ORA	ORANGE
WHT	WHITE	VIO	VIOLET
BLUE	BLUE	BLK	BLACK
YEL	YELLOW	GRAY	GRAY
SKY	SKY	GRE	GREEN
BRN	BROWN		



HEATING ELECMENTS

INDUCTION ELEMENTS		
COMPONENTS	INPUT	WATTAGE
RF RADIANT ELEMENT	240V	3000
LF RADIANT ELEMENT	240V	3000
RR RADIANT ELEMENT	240V	1200
LR RADIANT ELEMENT	240V	1200
RC SINGLE ELEMENT	240V	100W

OVEN HEATING ELECMENTS		
COMPONENTS	INPUT	WATTAGE
BAKE	240V	3000W
BROIL	240V	3800W
CONVECTION	240V	1250W
WARM DRAWER	120V	600W

GSPN (Global Service Partner Network)

Contry	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

This Service Manual is a property of Samsung Electronics Co.,Ltd. Any unauthorized use of Manual can be punished under applicable International and/or domestic law.

© Samsung Electronics Co., Ltd. March. 2011
Printed in Korea